

Diamond Shamrock

Law Department - 04-121

September 21, 1980

Sandra S. Gardebring, Director
Enforcement Division, Region V
U.S. Environmental Protection Agency
230 South Dearborn Street
Chicago, Illinois 60604

Dear Ms. Gardebring:

EPA Region 5 Records Ctr.

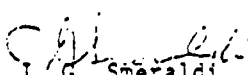


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Enclosed is Diamond Shamrock Corporation's responses to Part I of your Supplemental Information Request dated August 8, 1980.

Where responses to certain questions are incomplete or lacking, the reasons therefor are lack of information or data, and that our files and records are incomplete and do not go much beyond the decade of the '60's. As I believe you are aware, the Painesville Works started operations in 1912 or 1913 and finally ceased all operations in 1976.

Very truly yours,


J. G. Smeraldi, Assistant
General Counsel/Chemicals

JGS/lpm

Enc.

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Diamond Shamrock Corporation 10000 W. 11th Avenue, Suite 200, Minneapolis, MN 55425

EXHIBIT 19

1. Wastewater Treatment

The initial treatment of Wastewater consisted of treating the sodium chromate contaminated water with sulfur dioxide to reduce hexavalent chromium to trivalent chrome. The stream was then treated with alkaline material to produce chrome hydroxide, which precipitated out of solution prior to discharge to the Grand River. Initially, alkaline lime in a milk of lime pond was used to react to chrome hydroxide and settle out. This was changed in December, 1967 when the reduced chrome stream was sent to Waste Lake #4, which contained alkaline material. The alkaline material in Waste Lake #4 then reacted to form chrome hydroxide and it settled out prior to discharge to the Grand River.

Sometime during 1969, the reducing agent was changed from sulfur dioxide to spend pickle liquor (an acid solution) obtained from steel manufacturing. At this time the hexavalent chrome containing stream was treated with pickle liquor, then sent to Waste Lake #4 as trivalent chrome.

Attached are copies of reports of monthly wastewater discharges, from chromate operations, which reflect characteristics of these streams into and out of treatment. Also attached is a copy of Sketch No. 2-24-71-1B, revised March 11, 1974, titled "Schematic Diagram of Works Wastewater System", which shows all works wastewater streams and the chromate plant stream going to Waste Lake #4 as of 1967.

The December 1965 report shows effluent from the lime pond. Beginning with the December 1967 report, "waste lake effluent" refers to effluent from Waste Lake #4. "Chromate West Sewer", refers to the cooling water used in the evaporation procedure in the chromate plant. This cooling water stream was discussed in the March 1968 information submission. See Exhibit #1 and Exhibit #7.

2. Attached is Diamond Shamrock internal memo from K. E. Shaffer to G. R. Barbieri, which provides the basis for information relating to the composition of the residue on site. No original data sheets available. See Attached Exhibit #2.

3. Residue containing hexavalent chrome from our dichromate manufacturing process was not deposited in Waste Lake #4 until after the chromate plant was shut down and the waste lake #4 was

and allowed to dry up. This residue, containing 12 or less by weight hexavalent chromium, was spread over the surface of the eastern most section of Waste Lake #2. It is estimated that 530,000 tons of residue material was deposited on site from 1950 to plant shutdown in 1972. As a guess, about 750,000 tons were deposited from 1931 to 1972.

4. See attached U S. Geological Survey Quadrangel map showing location of samples taken in Part II of Exhibit F. Also attached are copies of laboratory analysis sheets and analysis methods for the data given in Part II of Exhibit F. Data given in Part I of Exhibit F was summarized from internal monthly wastewater reports from our files. Exact location, other than downstream of plant, is not available. Laboratory analysis sheets and method of analysis is also not available. (See attached Exhibit #3).

5. a) Construction assumed from memory to be during the 1920 to 1930 period.

b) Waste Lake #2 dike, to the best of our knowledge, was constructed of clay along the Grand River. The remaining dike construction is unknown.

c) Unknown, records not available.

d) " " " "

e) " " " "

f) " " " "

g) Approximately 75 feet.

6. The #2 Waste Lake was originally built to be used for wastewaters containing suspended solids, such as calcium carbonate from our soda ash production. The suspended solids were allowed to settle in the waste lake. This operation was stopped and Waste Lake #2 was allowed to dry prior to putting any chrome residue in this area.

Prior to use for calcium carbonate solids settling, it is unknown whether the #2 Waste Lake tract was lined or prepared in some other way. With respect to the chrome residue, no lining or preparations were made prior to spreading residue into the eastern most section of Waste Lake #2. It should be noted that chrome residue was deposited in an approximate 27 acre area in the eastern most portion of the 96 acre reclamation site, not over the entire waste lake area. An aerial photo, taken around 1972, is being reproduced and will be forwarded to you with the remainder of this submittal.

7. No information available in our records.

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8. No information available in our records.

9. Diamond Shamrock installed four wells around its one acre limited research quantities disposal site. The site is within one half mile of the #2 Waste Lake. Copies of original well logs are attached, refer to question #24. Also please find attached engineering prints showing test boring logs which were made around the Waste Lake #4 area. These test borings are also within one half mile of the #2 Waste Lake. (See Exhibit #4).

10. No soil borings have been performed in the Waste Lake #2 area.

11. No hydrogeological information is now available in our possession.

12. Maps of these areas are not available in our files.

13. A revised topographical drawing of the final fly ash and chrome residue site is presently under preparation by our contract engineering and surveying firm. Present contour lines are changing daily because of work in progress. Revisions to the existing plan, previously submitted to EPA, are being made involving minor slope adjustments. A copy of this revised plan will be forwarded as soon as it is available. We expect completion of this drawing within two weeks.

14. Attached please find the following information: (Exhibit #5)

- a) Experience with Geotechnical Methods for Design of Fly Ash Embankments and Structural Fills.
- b) Fly Ash for Construction of Highway Embankments.
- c) Notes on Fly Ash for Structural Backfill Behind Retaining Structures.
- d) Fly Ash Structural Fills: The Good, The Bad and The Ugly.
- e) Test results on the use of fly ash as a fill material for a construction job at the State Chemical Company in Cleveland, Ohio.

15. We have no present reason to suspect that groundwater is contaminated in this area. As for the treatment of leachate, groundwater or any water contaminated with chrome, Diamond Shamrock has had in practice for many years an effective method for the treatment of chrome contaminated water. Therefore, we have not had occasion to consider or reject any other methods for this treatment. We have not considered or rejected any other proposed methods for leachate or groundwater treatment.

16a. Areas to be given priority are all dike areas along the Grand River from the pipe bridge east to the area where the

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chrome impounding was. Also to be given priority was the area where the chrome impounding pond was set up to State Route 535. All of these priority areas which were discussed during U.S. EPA's April 1980 site visit, are now completed. The overall project is not behind schedule.

16b. The dike restoration project entailed excavations of dike areas along the river banks. All materials and residues found to be contaminated with chrome were removed from the banks and moved to the top of the old Waste Lake #2 area. The physical location of the dikes was pushed back from the river bank until the location of the original #2 Waste Lake dike was found. At this point the dikes were rebuilt and graded, covered with two feet of clay, then topsoil and seeded with rye grass and crown vetch. In addition to dike work, a clay berm was installed along the river bank approximately 5 to 7 feet wide and 5 to 12 feet deep. This berm was keyed into underlying clays and stretches along the river bank to the location of the old impounding pond. All the dike restoration work described above is now complete.

16c. During the construction, which occurred as part of the dike restorations, visual inspection by an experienced chromate operations person, coupled with samples of solids, analyzed qualitatively for hexavalent chrome by our Divisional Technical Center, were used as quality control measures.

16d. Clay and topsoil cover in all areas at this site will be a minimum of two feet in depth.

17a. When the total project is completed, we do not expect detectable leachate in area drainage. Our plan will permit surface drainage monitoring. If any leachate is detected in area drainage, we will be able to provide treatment, the chemistry of which is well known to Diamond Shamrock.

17b. Waiver Request from Ohio Rule 3745-27-06(I)(5), "Proximity to Streams or Lakes" has been granted by the State of Ohio. Our Waiver Request for less than the required two feet cover has been withdrawn.

17c. Current plans, as furnished to the U.S. EPA in response to the March, 1980 information request, include two collection points for surface runoff. Both collection points will flow to the Grand River after monitoring.

17d. Our Application for Plan Approval to the Ohio EPA, dated September 27, 1979, indicates that the project is expected to comply with State and Federal regulations in effect at that time. Since there are many regulations involved, we do not feel it is fruitful to list them all here. Please advise us if the EPA is aware of any regulations which we may be out of compliance.

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17. The plan proposes to minimize discharge to groundwater by isolating the residue with a wash and clay cap and a clay berm from surface grade keyed into underlying clays along the river bank. We believe the wastes on this site will be encapsulated on top, bottom and sides, therefore we expect no discharge to groundwater.

18. There is no projected specific use planned for this site after reclamation. Diamond Shamrock has no plans to sell this site. It has been proposed that the site could be used for wildlife or bird sanctuary.

19. The date of purchase of the Waste Lake #4 tract by Lake Underground Storage Corporation was August 23, 1978. Since the sales contract involves a third party, we do not feel that it is proper to release copies of this document.

20. A Quality clay dike was keyed into the virgin soil beneath the dike by using a clay base. Soil boring tests were made and water levels determined to evaluate bouyant effects on the dike. The attached engineering prints are representative of dike construction and show that the dike was enlarged twice. Also attached are the logs of soil test borings. These logs are also attached in response to question #9, See Exhibit #4. See Exhibit #6 for representative dike construction drawings.

21. Attached please find copies of available monthly reports titled "Wastewater Flow through Treatment Station and Waste Lake". In this report, the data identified as effluent to waste lake refers to the waste stream discharged to waste Lake #4 from the chromate operation. In addition, please find copies of available yearly summaries titled "Analytical Data for Water Pollution Abatement" from 1969 through Painesville works shutdown in 1976. Analysis include the following streams:

1. Hydrogate overflow or retention basin overflow- this is the effluent from the hydro or retention basin to the Grand River.
2. North Sewer - 1969 through 1971; an outfall from the workd directly to Lake Erie.
3. Waste Lake Overflow - 1969 through 1971; an overflow outfall from Waste Lake #4 to the Grand River. In 1972 this overflow was relocated to the Hydro-retention basin. See sketch attachment Exhibit #1.
4. Grand River, upstream or downstream of plant.
5. Lake Erie - Pumphouse intake sample (See Exhibit #7 for these wastewater reports).

22. All available monitoring report data, etc. was included in

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the attachment to question #21, see Exhibit #7.

23. The north or number one well was drilled August 29, 1979. The east or number two well was drilled September 6, 1979. The south or number three well was drilled September 10, 1979. The west or number four well was drilled September 12, 1979.

24. Attached are copies of the original well drilling logs. (See Exhibit #4).

25. David Brothers Drilling, Inc.
6659 Williams Road
Painesville, Ohio

26. Attached find copies of analyst's lab notebook sheets and a copy of the laboratory report of analysis. (See Exhibit #5).

27. The exact quantity of wastes noted on the inventory as drum, car, container or can is not known in all cases; however, records do indicate that "drum" usually referred to a 55 gallon size and "can" usually referred to a 5 gallon laboratory size. Other sizes of referenced "container" are unknown. The term "car" is probably a typographical error, as there was no physical way to bring a railroad tankcar to the site.

To the best of the information, knowledge and belief of the undersigned, all statements herein contained are true and accurate and all documents submitted herewith are true and authentic.

DIAMOND SHAMROCK CORPORATION

By Edward J. Fisher
Group Leader, Research & Development
Dated Sept 12 1980

County of Cuyahoga)
State of Ohio)

I, LINDA P. MERTON a notary public in and for said county and state do hereby certify that on September 2, 1980 the aforesaid Edward J. Fisher, known to me to be the person whose name is hereinabove subscribed, personally appeared before me and acknowledged that being aware of the contents of this Response to Information Request, he executed the same for Diamond Shamrock Corporation.

Linda P. Merton
Notary Public
State of Ohio

C100841

Interoffice Correspondence

To: Mr. G. R. Barbieri
From: K. F. Shaffer
Date: May 29, 1979

Subject: WASTE DISPOSAL SITE SURVEY

The following is an explanation of the calculations used in obtaining data for the Congressional Inquiry.

FORM A: GENERAL FACILITY INFORMATION

This form is for 1978, so no calculation was needed. A statement was made that the plant was closed in 1972.

FORM B: DISPOSAL SITE DATA

Data was used from 1950 as this is what was requested on this form.

Total amount of process waste from Painesville Chrome Plant disposed at site:

DISPOSAL SITE PROCESS WASTE CALCULATIONS

<u>YEAR</u>	<u>T.BICH PRODUCED PER DAY</u>	<u>T. RESIDUE PER TON BICHROMATE</u>	<u>DAYS OPERATED</u>	<u>TOTAL RESIDUE IN TONS</u>
1950 thru 1957	65	0.90	2922	170,900
1958 thru 1960	60	0.90	1096	59,200
1961 thru 1970	80	0.90	3652	262,900
1971	75	0.90	365	24,600
1972	70	0.90	85	5,400
Total Residue From 1950 to Plant Shutdown				<u>523,000</u>

Disposal of Steel Mill Effluent

There seems to be some question on our present situation with the State of Ohio in regard to the disposal of pickle liquor. We have currently three means of disposing of this material:

- 1) Discharge to Waste Lake No. 4 with mixing and sedimentation. This is covered by a State permit which regulates quantities and requires reporting of results of the discharges.
- 2) Disposal in Waste Lake No. 3. There we are required to keep records but not to report quantities or results to the state. There are no limitations of any kind as long as the liquor is completely neutralized and retained within the confines of the Waste Lake. Should any overflow from Waste Lake No. 3 develop, further discussions with the state will be necessary.
- 3) An experimental use of pickle liquor for reduction of hexavalent chrome in the chrome plating waste. In this method of disposal, pickle liquor replaces the SO₂ formerly used as a reducing agent. The reduced chrome will be discharged to Waste Lake No. 4 and settled out. The pickle liquor used will be a minor part of the quantities permitted in Waste Lake No. 4.

I trust this clarifies the pickle liquor picture. If you have any questions, please let me know.

W. E. Taylor

WET:ik

- cc: Mr. R. D. Hall
Mr. M. O. Kirk (Painesville)
Mr. S. L. Leas (Painesville)

COPY

Philip T. Kates, M.D.
William Helmer
S. F. Ruzicko, D.D.S.
Judson C. Schuler, LL.D.
J. Howard Holmes, M.D.

Ohio Department Building
Columbus 15, Ohio

DEPARTMENT OF HEALTH

REPORT ON DETAIL PLANS OF PROPOSED INDUSTRIAL WASTE TREATMENT PLANT

FOR STANDARD CHROMATE DIVISION, DIAMOND ALKALI COMPANY,

FAIRPORT.

On April 12, 1952, detail plans of proposed industrial waste treatment plant for Standard Chromate Division, Diamond Alkali Company, Fairport, were submitted by Mr. U. T. Greene, staff engineer, Central Engineering Department, Fairportville.

GENERAL

The Standard Chromate Division of the Diamond Alkali Company is located east of Fairport, south of Route No. 535 and north of the Grand River. The Grand River changes course from a northwesterly to a southeasterly direction in this location thereby forming an inverted U boundary on the south side.

Wastes which will be tributary to the proposed treatment works are the effluent from the plant's east sewer system, which contains chrome wastes, and the seepage of leachings from waste heap piles and runoff from the plant area containing with chrome.

PROPOSED IMPROVEMENTS

General Recommendation. The improvements proposed are: the construction of a dike to form an impounding area for the retention of chrome contaminated wastes from storm runoff and the retention of seepage, with the pumping of these wastes to the treatment devices; construction of sewer lines to collect, convey and dispose of

the processing and storm wastes; and devices for the treatment of all wastes and the reduction of hexavalent chrome to trivalent chrome and the subsequent addition of lime slurry to precipitate the trivalent chromium as hydroxide in a settling lagoon.

The treatment devices provide for the introduction of SO_2 gas to the wastes being treated thereby adjusting the pH to the optimum range of 4.75 to 5.0 and the subsequent reduction of chromium in the hexavalent form to trivalent form. Addition of lime slurry to the trivalent chromium forming a chromium hydroxide which precipitates in a settling lagoon with the resulting effluent from the lagoon being discharged chrome-free to the Grand River.

Design Data. The design of the proposed facilities has been based upon an average flow of 200 gpm processing waste, and 100 gpm from the impounding area. Based upon a 5-year average rainfall of 32-1/2 inches for the area, it is estimated that the impounding pond will receive rainfall of the impounding area and the runoff of approximately the equivalent area from the plant. A seepage factor from an abandoned chromate waste lake will contribute an undetermined amount which will probably compensate for rainfall losses incurred in runoff. With the assumption of an evaporation of 50% of the rainfall for the impounding area and based upon a 7-day work week and a 52-week year, the pumpage from the impounding area to the treatment plant will approximate 35 gpm average.

Impounding Area Dam. It is proposed to construct an impounding dam, between the Grand River and the chromate plant, to provide a holding area for runoff from the plant area and seepage. Contour of the ground permits this area to be so used with

the construction of a dam of approximately 1900 feet length. The area of impounding basin will be approximately 11-1/2 acres with a volume of 11-1/4 million gallons on an average 3' depth. The yardage of dirt required for the dam will be about 16,000 cu. yds. and an adjacent area will provide the needed dirt.

Impounding Area Sewer Pump and Amenities. The impounding area wastes are to be pumped to the equalizing tank for treatment with the processing wastes. A pump pump structure and inlet basin is proposed to accomplish this. The pump and structure will be located in the northeast part of the impounding area near an existing road which is the bank top of an old stream bed. The inlet to the pump pump will be thru an opening in the wall of the structure on stream bed side.

Pumping equipment will be a Ewing Co. 4620, Size 2, pump pump rated at 100 gpm at 70' head. Power by a 5 horsepower, 1750 rpm motor. The inlet to the pump will be protected by a floor grating screen of 4 panels, 21'-10" wide x 11'-3" high, placed in a vertical retaining groove. A 2-1/2" gate valve on the discharge line could be utilized for controlled discharge. It is proposed to operate the pump by a float control switch.

Sewer Lines. The proposed plans provide for an extension of the plant's west sewer a distance of approximately 256' to transport this effluent across the diked area for discharge to the river. The effluent is essentially free from contamination.

The plans provide for an extension of the existing Chromate Division's "east sewer system" to the treatment facilities and thence to the settling pond. At the present terminal point of the two sewer lines bearing contaminated wastes, a manhole will be constructed with a diversion outlet to the impounding area to

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relieve the overload condition during storm flows. The contaminated wastes will be conveyed thru 390' of new 15" sewer pipe and 20' of 15" steel pipe to the equalizing tanks, the grade of sewer line to be .3856 pipe or sumps. The effluent from the gasping tower assembly will flow thru approximately 168' of 13" standard strength V.S.P. on a 3.85 grade to the settling pond.

The impounding area pump discharge line will be 4" steel approximately 265' long, sloped for drainage back to the pump, the discharge to be in the first equalizing tank.

Equalizing Tanks. The plans provide for two tanks, 12' x 12' x 6' depth, connected in series, to receive the wastes prior to treatment. The tanks are to smooth out the variations in concentration of the wastes only, enabling a more effective control in the gasping tower. A capacity of 12,900 gallons is provided giving a detention period of 64 minutes at 200 gpm flow. Any gross solids should settle out at this point.

Gasping Tower. The proposed treatment for reduction of hexavalent chromium is fundamentally based upon the operation of the gasping tower. The tower is constructed of four 3' lengths of 36" V.S. pipes, in upright position, resting on a concrete base. The upper tile or top section is a 36" x 15" tee branch, the tee being the discharge outlet from the tower. By the use of two additional 18" x 18" tee branches and short connecting pieces, the center line of the effluent line is 3'-11-3/4" below the center line of the tower discharge. The lower part of the tower is constructed of five 3' length 15" V.S. pipes with the upper section an 18" x 18" tee branch, which tee is the inlet connection to the tower. The center sum of tile rests upon a dark brick foundation built up 15" from the concrete base. The top 9" of dark brick are layed up to form 6 stacks, each 3 bricks high.

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This allows free passage of waste from the inner column to the outer column and thence upward to discharge. The center line of the inlet on the inner column is 3'-11-1/4" higher than the center line of discharge from the outer column. All joints in construction of the tower are to be filled with gate and Roman all-purpose cement. Brick work is set with chromaset cement. SO₂ gas is applied to the waste at the bottom of the center column by means of a diffuser. Feed to the diffuser is by 3/4" pipe thru the 18" center column from the top. This arrangement provides for diffused SO₂ gas to be applied to approximately an 8.67' high column of waste. A pH electrode is located at the point of discharge which in turn activates the pH meter and the SO₂ feed devices. The waste is adjusted to a pH of 4.75 to 5 and the hexavalent chromium reduced to a trivalent form.

Line Slurry Feed. It is proposed to introduce line slurry into the effluent from the gasing chamber for the purpose of precipitating the trivalent chromium as hydroxide. The line slurry is obtained from a 4" line transvering the Diamond Alkali property, transferred approximately 330' by means of a 1" steel pipe and introduced into the 18" effluent line near the gasing chamber. Manual control will be employed in feeding the line slurry of one pound per gallon concentration. Mixing of the line slurry and trivalent chrome waste to be completed in 150' of effluent line and the drop from the point of discharge to the line settling pond. An excess of lime feed is proposed with the surplus settling out with the hydroxide in the settling basin.

Control House and SO₂ Equipment. The control house, located near the gasing tower, will house the equipment necessary to apply SO₂ in the gasing tower. A Worthington 4 x 4 vertical single acting two cylinder compressor driven by a

horsepower, 1750 rpm motor, provides the air necessary for operation. An SO_2 vaporizer, with a chromalox type, 6 Kw water heater converts the liquid SO_2 to a gaseous state for feeding to the waste. The instrument board contains the necessary meters and controls for operation.

The piping and controls are so arranged that the compressor furnishes air for two purposes. An air pressure of 60 pounds per sq. in. is used for unloading tank cars. This pressure being applied to the tank cars forces the liquid SO_2 into the storage tank. A pressure of 50 lbs. per sq. in. is used to feed the liquid SO_2 from the storage tank, to the vaporizer from which the gaseous SO_2 is fed to the diffuser in the passing tower. The rate of feeding SO_2 to the passing tower is controlled by means of a pH meter and controlling device regulating an automatic control valve. A pH electrode activates the pH meter. The optimum range of pH in the passing tower is between 4.75 and 5.0. Further regulating devices include a solenoid valve which closes the feed line to the vaporizer in case of temperature drop or power failure.

SO_2 Storage Tank. Storage facilities for the SO_2 will be a cylindrical tank of approximately 1600 cu.ft. capacity located near the treatment devices. The tank is to be above ground and resting upon concrete cradles. For normal operating requirements the storage capacity will be sufficient for approximately 110 twenty-four hour working days. Storage and drainage waste treatment will substantially reduce the number of days storage of SO_2 .

The Estimated Cost of the project including the building of the dam for the impounding area is \$129,500 with an estimated annual operating cost of \$26,000.

The annual estimate includes depreciation, taxes and insurance.

SUMMARY

The experience of this department with the proposed type of treatment is limited, however, recent publications indicate that the method proposed and the facilities proposed for the collection and treatment of chrome-contaminated wastes for the Standard Chromate Division of the Diamond Alkali Company, Fairport, appears to represent a satisfactory system. The design and facilities are based upon an indicated extensive research and development program, carried on for a period of about 2 years in which plant effluents, seepages of plant area, and river analyses were made. The proposal to use SO_2 gas for the adjustment of pH to a 4.75 to 5.0 range deviates somewhat from standard practice but the overall economic and operational picture may justify this use.

The settling lagron, receiving the trivalent chromium hydroxide and excess lime, will be a device which will require attention in the future. To maintain the detention time, cleaning or raising the dikes can restore the capacity.

It is recommended that the plans be approved subject to the usual conditions.

356-93
5-19-52

6101173

Maxus Energy Corporation
707 North Highway 100
Dallas, Texas 75201
(214) 383-1200

Please Reply To:

23200 Chagrin Boulevard
Four Commerce Park Square
Suite 600
Beachwood, OH 44122

MAXUS

Federal Express Airbill No. 8322686890

January 15, 1992

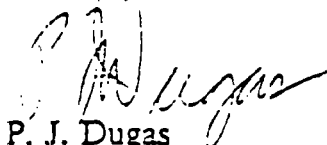
Mr. Norman Bock
Cecos International
56th and Niagara Falls Blvd.
Niagara Falls, NY 14304

Re: New Chemical Analysis for Waste 11878 AAB
Chemical Land Holdings One Acre Site
Painesville, Ohio

Dear Mr. Bock:

Attached is a copy of an analysis of a composite sample of all five (5) groundwater pumping wells as the subject site. This is a representative sample of the waste, analyzed for all FO39 parameters. Please note that a TCLP extract on this aqueous waste was not performed, but rather this is an analysis of the waste itself. Any questions, please call me directly at (216) 292-8226.

Sincerely,



P. J. Dugas
Sr. Environmental Engineer
For: Chemical Land Holdings, Inc.

PJD:ss

Attachment

EXHIBIT 23

LOG NO: M1-23509

Received: 12 DEC 91

Mr. Paul J. Dugas
Maxus Energy Corporation
Four Commerce Park Square, 23200 Chagrin Blvd.
Beachwood, Ohio 44122

Project: One Acre
Sampled By: Client

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IW121191	12-11-91
PARAMETER	23509-1	
Volatile Organic Compounds		
Acetonitrile, ug/l	<50	
Acetone, ug/l	<100	
Benzene, ug/l	5.8	
Bromodichloromethane, ug/l	<5.0	
Bromomethane, ug/l	<10	
Carbon Disulfide, ug/l	<5.0	
Chlorobenzene, ug/l	<5.0	
Dibromochloromethane, ug/l	<5.0	
Chloroethane, ug/l	<10	
Chloromethane, ug/l	<10	
2-Chloroethylvinyl Ether, ug/l	<10	
Chloroform, ug/l	530	
3-Chloropropene (Allylchloride), ug/l	<10	
Chloroprene, ug/l	<10	
1,2-Dibromo-3-chloropropane, ug/l	<10	
1,2-Dibromoethane (EDB) , ug/l	<5.0	
Dibromomethane, ug/l	<5.0	
Trans-1,4-Dichloro-2-butene, ug/l	<10	
Dichlorodifluoromethane, ug/l	<50	
1,1-Dichloroethane, ug/l	3700	
1,2-Dichloroethane, ug/l	<5.0	
Trans-1,2-Dichloroethene, ug/l	<5.0	
1,1-Dichloroethene, ug/l	61	
Methylene Chloride, ug/l	53	
1,2-Dichloropropane, ug/l	<5.0	

LOG NO: M1-23509

Received: 12 DEC 91

Mr. Paul J. Dugas
Maxus Energy Corporation
Four Commerce Park Square, 23200 Chagrin Blvd.
Beachwood, Ohio 44122

Project: One Acre
Sampled By: Client

REPORT OF RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IWI21191	12-11-91
PARAMETER	23509-1	
Cis-1,3-Dichloropropene, ug/l	<5.0	
Trans-1,3-Dichloropropene, ug/l	<5.0	
Ethylbenzene, ug/l	<5.0	
2-butanone (MEK), ug/l	<100	
Iodomethane, ug/l	<5.0	
Methacrylonitrile, ug/l	<50	
4-methyl-2-pentanone (MIBK), ug/l	<10	
Pentachloroethane, ug/l	<10	
Styrene, ug/l	<5.0	
1,1,1,2-Tetrachloroethane, ug/l	<5.0	
1,1,2,2-Tetrachloroethane, ug/l	<5.0	
Tetrachloroethene, ug/l	300	
Carbon Tetrachloride, ug/l	310	
Toluene, ug/l	<5.0	
Bromoform, ug/l	<5.0	
1,1,2-Trichloroethane, ug/l	7.4	
1,1,1-Trichloroethane, ug/l	27000	
Trichloroethene, ug/l	5.1	
Trichlorofluoromethane, ug/l	520	
1,2,3-Trichloropropane, ug/l	<10	
Vinyl Acetate, ug/l	<50	
Vinyl chloride, ug/l	<10	
Xylenes, ug/l	100	
2-Hexanone, ug/l	<50	
Propionitrile, ug/l	<50	
Methyl methacrylate, ug/l	<10	

LOG NO: M1-23509

Received: 12 DEC 91

Mr. Paul J. Dugas
Maxus Energy Corporation
Four Commerce Park Square, 23200 Chagrin Blvd.
Beachwood, Ohio 44122

Project: One Acre
Sampled By: Client

REPORT OF RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IW121191	12-11-91
PARAMETER	23509-1	
Acrolein, ug/l	<50	
Acrylonitrile, ug/l	<50	
Ethyl methacrylate, ug/l	<10	
Isobutyl Alcohol, ug/l	<1000	
Butyl Alcohol, ug/l	<1000	
Cyclohexanone, ug/l	<50	
Ethyl acetate, ug/l	<50	
1,1,2-Trichloro-1,2,2-trifluoroethane, ug/l	<10	
Ethyl ether, ug/l	<10	
Ethylene oxide, ug/l	N/D	
Surrogates - Volatiles		
Toluene-d8, % Rec	98 %	
4-Bromofluorobenzene, % Rec	104 %	
Surrogate - 1,2-Dichloroethane-d4, % Rec	96 %	
Date Analyzed	12.17.91	

LOG NO: M1-23509

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REPORT OF RESULTS

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IWI21191	12-11-91
PARAMETER	23509-1	
Acids and Base Neutrals		
Acenaphthene, ug/l		<10
Acenaphthylene, ug/l		<10
Acetophenone, ug/l		<10
2-Acetylaminofluorene, ug/l		<20
4-Aminobiphenyl, ug/l		<20
Anthracene, ug/l		<10
Aniline, ug/l		<10
Aramite, ug/l		<10
Benzo(a)Anthracene, ug/l		<10
Benzo (k) Fluoranthene, ug/l		<10
Benzo(b)fluoranthene, ug/l		<10
Benzo(g,h,i)perylene, ug/l		<10
Benzo(a)pyrene, ug/l		<10
Benzyl alcohol, ug/l		<10
bis(2-Chloroethoxy) methane, ug/l		<10
bis(2-Chloroethyl) ether, ug/l		<10
Bis(2-chloroisopropyl)ether, ug/l		<10
bis(2-Ethylhexyl) phthalate, ug/l		<10
4-Bromophenyl-phenyl-ether, ug/l		<10
Butylbenzylphthalate, ug/l		<10
(Dinoseb) 2-sec-Butyl-4,6-dinitrophenol, ug/l		<10
p-Chloroaniline, ug/l		<20
1,3-Dichlorobenzene, ug/l		43
1,4-Dichlorobenzene, ug/l		64
1,2-Dichlorobenzene, ug/l		21

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IW121191	12-11-91
PARAMETER	23509-1	
4-Chlorophenyl-phenyl ether, ug/l	<10	
2-Chloronaphthalene, ug/l	<10	
Chrysene, ug/l	<10	
Dibenzo(a,h)anthracene, ug/l	<10	
Di-n-butylphthalate, ug/l	32	
3,3'-Dichlorobenzidine, ug/l	<20	
3,3'-Dimethylbenzidine, ug/l	<10	
Diethylphthalate, ug/l	<10	
p-(Dimethylamino)azobenzene, ug/l	<10	
7,12-Dimethylbenz(a)anthracene, ug/l	<10	
a-a-Dimethylphenethylamine, ug/l	<50	
Dimethylphthalate, ug/l	<10	
m-Dinitrobenzene, ug/l	<50	
2,4-Dinitrotoluene, ug/l	<10	
2,6-Dinitrotoluene, ug/l	<10	
Di-n-octylphthalate, ug/l	<10	
Diphenylamine, ug/l	<10	
N-Nitroso-di-n-propylamine, ug/l	<10	
Fluoranthene, ug/l	<10	
Fluorene, ug/l	<10	
Hexachlorobenzene, ug/l	<10	
Hexachlorobutadiene, ug/l	81	
Hexachlorocyclopentadiene, ug/l	<10	
Hexachloroethane, ug/l	15	
Hexachlorophene, ug/l	<10	
Hexachloropropene, ug/l	<10	



SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

200 Lakeside Drive • Mobile, Alabama 36688-5113 • (205) 666-6633 • Fax (205) 666-6696

LOG NO: M1-23509

Received: 12 DEC 91

Mr. Paul J. Dugas
Maxis Energy Corporation
Four Commerce Park Square, 23200 Chagrin Blvd.
Beachwood, Ohio 44122

Project: One Acre
Sampled By: Client

REPORT OF RESULTS

Page 6

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IW121191	12-11-91
PARAMETER	23509-1	
Indeno (1,2,3-cd)pyrene, ug/l	<10	
Isophorone, ug/l	<10	
Isosafrole, ug/l	<10	
Methapyrilene, ug/l	<10	
3-Methylcholanthrene, ug/l	<10	
Methylmethanesulfonate, ug/l	<10	
2-Methylnaphthalene, ug/l	<10	
Naphthalene, ug/l	18	
1,4-Naphthoquinone, ug/l	<10	
1-Naphthylamine, ug/l	<10	
2-Naphthylamine, ug/l	<10	
2-Nitroaniline, ug/l	<50	
3-Nitroaniline, ug/l	<50	
4-Nitroaniline, ug/l	<50	
Nitrobenzene, ug/l	<10	
N-Nitrosodi-n-butylamine, ug/l	<10	
N-Nitrosodiethylamine, ug/l	<20	
N-Nitrosodimethylamine, ug/l	<10	
N-Nitrosomethylethylamine, ug/l	<10	
N-Nitrosodiphenylamine/Diphenylamine, ug/l	<10	
N-Nitrosomorpholine, ug/l	<10	
N-Nitrosopiperidine, ug/l	<10	
Nitrosopyrrolidine, ug/l	<10	
5-Nitro-o-toluidine, ug/l	<10	
Pentachlorobenzene, ug/l	<10	
Pentachloronitrobenzene, ug/l	<100	

LOG NO: M1-23509

Received: 12 DEC 91

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	HW121191	12-11-91
PARAMETER	23509-1	
Phenacetin, ug/l	<10	
Phenanthrene, ug/l	<10	
2-Picoline, ug/l	<10	
Pronamide, ug/l	<10	
Pyrene, ug/l	<10	
Saftrole, ug/l	<10	
1,2,4,5-Tetrachlorobenzene, ug/l	<10	
1,2,4-Trichlorobenzene, ug/l	<10	
2-Chlorophenol, ug/l	<10	
Cresol m & p, ug/l	<10	
O-cresol, ug/l	<10	
4-Nitrophenol, ug/l	<10	
2,4-Dichlorophenol, ug/l	<10	
2,6-Dichlorophenol, ug/l	<10	
2,4-Dimethylphenol, ug/l	<10	
4,6-Dinitro-2-methylphenol, ug/l	<50	
2,4-Dinitrophenol, ug/l	<50	
Pentachlorophenol, ug/l	<50	
Phenol, ug/l	<10	
2,4,5-Trichlorophenol, ug/l	<10	
2,4,6-Trichlorophenol, ug/l	<10	
2,3,4,6-Tetrachlorophenol, ug/l	<10	
2-Nitrophenol, ug/l	<10	
Diallate, ug/l	<10	
Ethyl methanesulfonate, ug/l	<10	
4-Nitroquinoline 1-oxide, ug/l	<10	

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Mr. Paul J. Dugas
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Page 8

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IW121191	12-11-91
PARAMETER	23509-1	
p-phenylenediamine, ug/l	<10	
o-toluidine, ug/l	<10	
O,O,O-triethyl phosphorothioate, ug/l	<10	
1,3,5-Trinitrobenzene, ug/l	<10	
4-Chloro-3-methylphenol, ug/l	<10	
Dibenzofuran, ug/l	<10	
Pyridine, ug/l	<10	
4,4'-Methylenebis(2-chloroaniline), ug/l	<10	
1,4-Dioxane, ug/l	<500	
1,4-Dinitrobenzene , ug/l	<50	
1,2-Diphenylhydrazine, ug/l	<10	
Surrogates - Semivolatiles		
Surrogate - Phenol d 5, % Rec	30 %	
Surrogate - 2-Fluorophenol, % Rec	51 %	
Surrogate - 2,4,6-Tribromophenol, % Rec	98 %	
Surrogate - Nitrobenzene d-5, % Rec	106 %	
Surrogate - 2-Fluorobiphenyl, % Rec	103 %	
Surrogate - Terphenyl, % Rec	140 %	
Date Extracted	12.16.91	
Date Analyzed	12.18.91	

LOG NO: M1-23509

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Mr. Paul J. Dugas
Maxus Energy Corporation
Four Commerce Park Square, 23200 Chagrin Blvd.
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REPORT OF RESULTS

Page 9

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IW121191	12-11-91
PARAMETER	23509-1	
Chlorinated Pesticides		
Aldrin, ug/l	<0.10	
Isodrin, ug/l	<0.20	
Chlordane, ug/l	<1.0	
Chlorobenzilate, ug/l	<5.0	
DDD, ug/l	<0.20	
DDE, ug/l	<0.20	
DDT, ug/l	<0.50	
Dieldrin, ug/l	<0.20	
Endosulfan I, ug/l	<0.20	
Endosulfan II, ug/l	<0.50	
Endosulfan sulfate, ug/l	<1.0	
Endrin, ug/l	<0.20	
Endrin Aldehyde, ug/l	<1.0	
Heptachlor, ug/l	<0.10	
Heptachlor epoxide, ug/l	<0.20	
alpha-BHC, ug/l	<0.10	
beta-BHC, ug/l	<0.10	
gamma-BHC, ug/l	<0.10	
delta-BHC, ug/l	<0.10	
Kepone, ug/l	<0.50	
Methoxychlor, ug/l	<5.0	
Toxaphene, ug/l	<10	
Aroclor-1016, ug/l	<5.0	
Aroclor-1221, ug/l	<5.0	
Aroclor-1232, ug/l	<5.0	

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Received: 12 DEC 91

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Maxus Energy Corporation
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REPORT OF RESULTS

Page 10

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IW121191	12-11-91
PARAMETER	23509-1	
Aroclor-1242, ug/l	<5.0	
Aroclor-1248, ug/l	<5.0	
Aroclor-1254, ug/l	<5.0	
Aroclor-1260, ug/l	<5.0	
Surrogate - Dibutylchlorodane (CL 20-150)	71 %	
DDD (o.p.), ug/l	<0.20	
DDE (o.p.), ug/l	<0.20	
DDT (o.p.), ug/l	<0.50	
4,4'-DDD, ug/l	<0.20	
4,4'-DDE, ug/l	<0.20	
4,4'-DDT, ug/l	<0.50	
Date Extracted	12.17.91	
Date Analyzed	12.19.91	
Herbicides		
2,4-D, ug/l	<5.0	
2,4,5-T, ug/l	<3.0	
2,4,5-TP Silvex, ug/l	<1.0	
Date Extracted	12.17.91	
Date Analyzed	12.18.91	

LOG NO: M1-23509

Received: 12 DEC 91

Mr. Paul J. Dugas
Maxus Energy Corporation
Four Commerce Park Square, 23200 Chagrin Blvd.
Beachwood, Ohio 44122

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REPORT OF RESULTS

Page 11

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IW121191	12-11-91
PARAMETER	23509-1	
Organophosphorus Pesticides (8141)		
Disulfoton, ug/l	<2.0	
Methyl Parathion, ug/l	<0.30	
Ethyl Parathion, ug/l	<1.0	
Sulfotepp, ug/l	<1.0	
Famphur, ug/l	<10	
Phorate, ug/l	<1.5	
Thionazin, ug/l	<1.0	
Dimethoate, ug/l	<10	
Date Extracted	12.17.91	
Date Analyzed	12.20.91	

LOG NO: M1-23509

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Mr. Paul J. Dugas
Maxus Energy Corporation
Four Commerce Park Square, 23200 Chagrin Blvd.
Beachwood, Ohio 44122

Project: One Acre
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REPORT OF RESULTS

Page 12

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IW121191	12-11-91
PARAMETER	23509-1	
Metals		
Antimony, mg/l	<0.10	
Arsenic, mg/l	<0.0020	
Barium, mg/l	0.32	
Beryllium, mg/l	<0.0050	
Cadmium, mg/l	<0.0050	
Chromium, mg/l	<0.010	
Cobalt, mg/l	0.11	
Copper, mg/l	0.021	
Lead, mg/l	0.0052	
Nickel, mg/l	0.066	
Selenium, mg/l	<0.0020	
Silver, mg/l	<0.010	
Thallium, mg/l	<0.010	
Tin, mg/l	<0.050	
Vanadium, mg/l	<0.020	
Zinc, mg/l	0.029	
Date Analyzed	12.20.91	
Mercury (7470/7471)		
Mercury, mg/l	<0.00020	
Date Analyzed	12.17.91	
Total Cyanide (9010)		
Cyanide, mg/l	<0.010	
Date Analyzed	12.23.91	
Cyanide Amenable to Chlorination (9010)		
Cyanide, mg/l	<0.010	
Date Analyzed	12.23.91	

LOG NO: M1-23509

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Mr. Paul J. Dugas
Maxus Energy Corporation
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Beachwood, Ohio 44122

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Page 13

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE SAMPLED
23509-1	IW121191	12-11-91
PARAMETER	23509-1	
Sulfide (9030)		
Total Sulfide , mg/l	<0.033	
Date Analyzed	12.16.91	
Fluoride (340.2)		
Fluoride, mg/l	0.35	
Date Analyzed	12.28.91	
Chlorinated Dioxins & Furans (8280)		
Tetra CDD, ug/l	<0.0050	
Tetra CDF, ug/l	<0.0050	
Penta CDD, ug/l	<0.0050	
Penta CDF, ug/l	<0.0050	
Hexa CDD, ug/l	<0.0050	
Hexa CDF, ug/l	<0.0050	
2,3,7,8-TCDD, ug/l	<0.0050	
Surrogates - Dioxins		
Internal Standard (2,3,7,8-TCDD), % Rec	61 %	
Date Extracted	12.17.91	
Date Analyzed	12.31.91	

REFERENCE: EPA SW-846 3rd Edition, 1986

MAXUS Environmental Services, Inc.
23200 Chagrin Blvd.
Four Commerce Park Square
Suite 600
Beachwood, OH 44122

Please Reply To:

23200 Chagrin Blvd.
Four Commerce Park Square
Suite 600
Beachwood, OH 44122

MAXUS

October 15, 1990

Mr. N.R. Bock, Jr.
Customer Service Supervisor
Cecos International, Inc.
P.O. Box 340 L.P.O.
Niagara Falls, NY 14304-0340

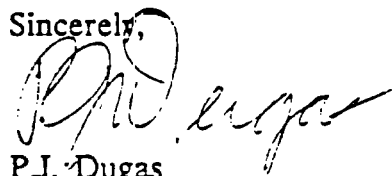
RE: Updated Waste Characterization Data Form
One Acre Site, Painesville, Ohio
Cecos Product Code 11878-AAB

Dear Mr. Bock:

As requested in your 10/10/90 letter, attached is an updated Cecos Waste Characterization Data form with attached analytical report. The analyses were performed on a composite sample of the subject site's 5 groundwater extraction wells, equal volumes of each, combined. The analytical parameters included all those identified in the U.S. EPA's F039 category.

If you have any questions, please call me directly.

Sincerely,



P.J. Dugas
Sr. Environmental Engineer
For: Chemical Land Holdings, Inc.

PJD:rd
Attachments

Attachment A Cover Sheet

Composite Sample Analytical Results from Equal Volumes of Wells IW-1 through IW-5 at Chemical Land Holdings One Acre Site, Painesville, Ohio. Collected 7/2/90.

(Twelve Pages Follow)

LOG NO: MO-06959

Received: 02 JUL 90

Mr. Paul J. Dugas
Maxus Energy Corporation
Four Commerce Park Square
Seachwood, Ohio 44122

Project: One Acre

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION	LIQUID SAMPLES	SAMPLED BY
06959-1	INCO70290 07/02/90		Client
PARAMETER		06959-1	
Volatile Organic Compounds (8240)			
Acetonitrile, ug/l		<200	
Acetone, ug/l		<100	
Benzene, ug/l		26	
Bromodichloromethane, ug/l		<20	
Methyl Bromide, ug/l		<40	
Carbon Disulfide, ug/l		<20	
Chlorobenzene, ug/l		<20	
Chlorodibromomethane, ug/l		<20	
Chloroethane, ug/l		<40	
Methyl Chloride, ug/l		<20	
2-Chloroethylvinyl Ether, ug/l		<40	
Chloroform, ug/l		660	
3-Chloropropene, ug/l		<20	
1,2-Dibromo-3-chloropropane, ug/l		<40	
1,2-Dibromoethane (EDB), ug/l		<20	
Dibromomethane, ug/l		<40	
Dichlorodifluoromethane, ug/l		<200	
1,1-Dichloroethane, ug/l		<600	
1,2-Dichloroethane, ug/l		54	
1,2-Trans-Dichloroethylene, ug/l		<20	
1,1-Dichloroethene, ug/l		560	
Methylene Chloride, ug/l		130	
1,2-Dichloropropane, ug/l		<20	

LOG NO: MO-06959

Received: 02 JUL 90

Mr. Paul J. Dugas
Maxus Energy Corporation
Four Commerce Park Square
Beachwood, Ohio 44122

Project: One Acre

REPORT OF RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION . LIQUID SAMPLES	SAMPLED BY
06959-1	IWC070290 07/02/90	Client
PARAMETER	06959-1	
Cis-1,3-Dichloropropene, ug/l	<20	
Trans-1,3-Dichloropropene, ug/l	<20	
Ethylbenzene, ug/l	<20	
2-butanone (MEK), ug/l	<40	
Iodomethane, ug/l	<800	
Methacrylonitrile, ug/l	<200	
4-methyl-2-pentanone (MIBK), ug/l	<40	
1,1,1,2-Tetrachloroethane, ug/l	<20	
1,1,2,2-Tetrachloroethane, ug/l	<20	
Tetrachloroethylene, ug/l	220	
Carbon Tetrachloride, ug/l	100	
Toluene, ug/l	<20	
Bromoform, ug/l	<20	
1,1,2-Trichloroethane, ug/l	39	
1,1,1-Trichloroethane, ug/l	16000	
Trichloroethene, ug/l	<20	
Trichlorofluoromethane, ug/l	700	
Trichloropropane, ug/l	<20	
Vinyl chloride, ug/l	<40	
Xylenes, ug/l	48	
Ethyl cyanide (propanenitrile), ug/l	<200	
Methyl methacrylate, ug/l	<40	
Acrylonitrile, ug/l	<200	
Ethyl methacrylate, ug/l	<40	

LOG NO: MO-06959

Received: 02 JUL 90

Mr. Paul J. Dugas
Maxus Energy Corporation
Four Commerce Park Square
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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
06959-1	IWC070290 07/02/90	Client
PARAMETER	06959-1	
Isobutyl Alcohol, ug/l	<400	
N-butyl Alcohol, ug/l	<400	
1,1,2-Trichloro-1,2,2-trifluoroethane, ug/l	<40	
Cyclohexanone, ug/l	<200	
Ethyl acetate, ug/l	<200	
Ethyl ether, ug/l	<200	
Ethylene oxide, ug/l	ND	
Surrogates - Volatiles		
Toluene-d8, % Rec.	102 %	
4-Bromofluorobenzene, % Rec.	92 %	
Surrogate - 1,2-Dichloroethane-d4, % Rec.	109 %	
Date Analyzed	07.17.90	

LOG NO: MO-06959

Received: 02 JUL 90

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Maxus Energy Corporation
Four Commerce Park Square
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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
06959-1	IWC070290 07/02/90	Client
PARAMETER	06959-1	
Acids and Base Neutrals (8270)		
Acenaphthene, ug/l	<10	
Acenaphthylene, ug/l	<10	
Acetophenone, ug/l	<10	
2-Acetylaminofluorene, ug/l	<10	
4-Aminobiphenyl, ug/l	<10	
Anthracene, ug/l	<10	
Aniline, ug/l	<10	
Benzo(a)Anthracene, ug/l	<10	
Benzo (k) Fluoranthene, ug/l	<10	
Benzo(b)fluoranthene, ug/l	<10	
Benzo(g,h,i)perylene, ug/l	<10	
Benzo(a)pyrene, ug/l	<10	
bis(2-Chloroethoxy) methane, ug/l	<10	
bis(2-Chloroethyl) ether, ug/l	<10	
Bis(2-chloroisopropyl)ether, ug/l	<10	
bis(2-Ethylhexyl) phthalate, ug/l	<10	
4-Bromophenyl-phenyl-ether, ug/l	<10	
Butylbenzylphthalate, ug/l	<10	
2-sec-Butyl-4,6-dinitrophenol, ug/l	<50	
P-Chloroaniline, ug/l	<10	
1,3-Dichlorobenzene, ug/l	20	
1,4-Dichlorobenzene, ug/l	34	
1,2-Dichlorobenzene, ug/l	15	

LOG NO: MO-06959

Received: 02 JUL 90

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Maxus Energy Corporation
Four Commerce Park Square
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REPORT OF RESULTS

Page 5

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
06959-1	IWC070290 07/02/90	Client
PARAMETER	06959-1	
2-Chloronaphthalene, ug/l	<10	
Chrysene, ug/l	<10	
Dibenz (a,h)anthracene, ug/l	<10	
Dibutyl phthalate, ug/l	80	
Diethyl Phthalate, ug/l	<10	
P-Dimethylaminoazobenzene, ug/l	<10	
7,12-Dimethylbenz(a)anthracene, ug/l	<10	
Alpha-alpha-Dimethylphenethylamine, ug/l	<10	
Dimethylphthalate, ug/l	<10	
Dinitrobenzene (meta), ug/l	<10	
2,4-Dinitrotoluene, ug/l	<10	
2,6-Dinitrotoluene, ug/l	<10	
Di-n-octylphthalate, ug/l	<10	
Di-n-propylnitrosamine, ug/l	<10	
Fluoranthene, ug/l	<10	
Fluorene, ug/l	<10	
Hexachlorobenzene, ug/l	<10	
Hexachlorobutadiene, ug/l	<10	
Hexachlorocyclopentadiene, ug/l	110	
Hexachloroethane, ug/l	16	
Hexachloropropene, ug/l	<10	
Indeno (1,2,3-cd)pyrene, ug/l	<10	
Isosafrole, ug/l	<10	
Methapyrilene, ug/l	<10	

LOG NO: MO-06959

Received: 02 JUL 90

Mr. Paul J. Dugas
Maxus Energy Corporation
Four Commerce Park Square
Beachwood, Ohio 44122

Project: One Acre

REPORT OF RESULTS

Page 6

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
06959-1	IWCO70290 07/02/90	Client
PARAMETER	06959-1	
3-Methylcholanthrene, ug/l	<10	
Methyl methanesulfonate, ug/l	<10	
Naphthalene, ug/l	10	
2-Naphthylamine, ug/l	<10	
2-Nitroaniline, ug/l	<50	
Nitrobenzene, ug/l	<10	
N-Nitrosodi-n-butylamine, ug/l	<10	
N-Nitrosodiethylamine, ug/l	<10	
N-Nitrosodimethylamine, ug/l	<10	
N-Nitrosomethylethylamine, ug/l	<10	
N-Nitrosomorpholine, ug/l	<10	
N-Nitrosopiperidine, ug/l	<10	
Nitrosopyrrolidine, ug/l	<10	
5-Nitro-o-toluidine, ug/l	<10	
Pentachlorobenzene, ug/l	<10	
Pentachloronitrobenzene, ug/l	<10	
Phenacetin, ug/l	<100	
Phenanthrene, ug/l	<10	
Pronamide, ug/l	<10	
Pyrene, ug/l	<10	
Safrole, ug/l	<50	
1,2,4,5-Tetrachlorobenzene, ug/l	<10	
1,2,4-Trichlorobenzene, ug/l	<10	
2-Chlorophenol, ug/l	<10	

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
06959-1	IWC070290 07/02/90	Client
PARAMETER	06959-1	
Cresol m & p, ug/l	<10	
O-cresol, ug/l	<10	
4-Nitrophenol, ug/l	<50	
2,4-Dichlorophenol, ug/l	<10	
2,6-Dichlorophenol, ug/l	<10	
2,4-Dimethylphenol, ug/l	<10	
4,6-Dinitro-o-cresol, ug/l	<50	
2,4-Dinitrophenol, ug/l	<50	
Pentachlorophenol, ug/l	<50	
Phenol, ug/l	<10	
2,4,5-Trichlorophenol, ug/l	<10	
2,4,6-Trichlorophenol, ug/l	<10	
2,3,4,6-Tetrachlorophenol, ug/l	<10	
4-Chloro-3-methylphenol, ug/l	<10	
Pyridine, ug/l	<10	
1,4-Dioxane, ug/l	<10	
1,4-Dinitrobenzene , ug/l	<10	
Chlorobenzilate, ug/l	<100	
1,2-Diphenylhydrazine, ug/l	<50	
4,4'-Methylenebis(2-chloroaniline), ug/l	<100	
DDD (o,p), ug/l	<10	
DDE (o,p), ug/l	<10	
DDT (o,p), ug/l	<10	

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REPORT OF RESULTS

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
06959-1	IWC070290 07/02/90	Client
PARAMETER	06959-1	
Surrogates - Semivolatiles		
Surrogate - Phenol d 5, % Rec.	12 %	
Surrogate - 2-Fluorophenol, % Rec.	71 %	
Surrogate - 2,4,6-Tribromophenol, % Rec.	80 %	
Surrogate - Nitrobenzene d-5, % Rec.	76 %	
Surrogate - 2-Fluorobiphenyl, % Rec.	60 %	
Surrogate - Terphenyl, % Rec.	92 %	

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REPORT OF RESULTS

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
06959-1	IWC070290 07/02/90	Client
PARAMETER	06959-1	
Chlorinated Pesticides		
Aldrin, ug/l	<0.20	
Isodrin, ug/l	<0.20	
Chlordane, ug/l	<2.0	
DDD, ug/l	<0.40	
DDE, ug/l	<0.40	
DDT, ug/l	<1.0	
Dieldrin, ug/l	<0.40	
Endosulfan I, ug/l	<0.40	
Endosulfan II, ug/l	<1.0	
Endosulfan sulfate, ug/l	<2.0	
Endrin, ug/l	<0.40	
Endrin Aldehyde, ug/l	<2.0	
Heptachlor, ug/l	<0.20	
Heptachlor epoxide, ug/l	<0.40	
alpha-BHC, ug/l	<0.20	
beta-BHC, ug/l	<0.20	
gamma-BHC, ug/l	<0.20	
delta-BHC, ug/l	<0.20	
Kepone, ug/l	<0.20	
Methoxychlor, ug/l	<10	
Toxaphene, ug/l	<10	
Aroclor-1016, ug/l	<10	
Aroclor-1221, ug/l	<10	

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REPORT OF RESULTS

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
06959-1	IWC070290 07/02/90	Client
PARAMETER	06959-1	
Aroclor-1232, ug/l	<10	
Aroclor-1242, ug/l	<10	
Aroclor-1248, ug/l	<10	
Aroclor-1254, ug/l	<10	
Aroclor-1260, ug/l	<10	
Surrogate - Dibutyl chlorodane. (% Rec)	105 %	
Date Extracted	07.05.90	
Date Analyzed	07.31.90	
Herbicides		
2,4-D, ug/l	<0.15	
2,4,5-T, ug/l	<0.09	
2,4,5-TP Silvex, ug/l	<0.03	
Date Extracted	07.09.90	
Date Analyzed	07.14.90	
Organophosphorus Pesticides		
Disulfoton, ug/l	<0.10	
Methyl Parathion, ug/l	<0.050	
Ethyl Parathion, ug/l	<0.050	
Famphur, ug/l	<1.0	
Phorate, ug/l	<0.10	
Date Extracted	07.09.90	
Date Analyzed	07.12.90	

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Project: One Acre

REPORT OF RESULTS

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
06959-1	IWC070290 07/02/90	Client

PARAMETER	06959-1
-----------	---------

Metals

Arsenic, mg/l	<0.002
Barium, mg/l	0.095
Beryllium, mg/l	<0.005
Cadmium, mg/l	<0.005
Chromium, mg/l	<0.01
Cobalt, mg/l	<0.02
Copper, mg/l	0.042
Lead, mg/l	<0.005
Nickel, mg/l	<0.02
Selenium, mg/l	0.013
Silver, mg/l	<0.01
Thallium, mg/l	<0.02
Tin, mg/l	<0.05
Vanadium, mg/l	<0.02
Zinc, mg/l	0.093
Date Analyzed	07.10.90
Mercury (7470/7471)	
Mercury, mg/l	<0.0002
Date Analyzed	07.15.90
Total Cyanide (9010)	
Cyanide, mg/l	<0.010
Date Analyzed	07.12.90

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REPORT OF RESULTS

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	SAMPLED BY
06959-1	IWC070290 07/02/90	Client
PARAMETER	06959-1	
Cyanide Amenable to Chlorination (9010)		
Cyanide, mg/l	<0.010	
Date Analyzed	07.10.90	
Sulfide (9030)		
Total Sulfide , mg/l	<0.03	
Date Analyzed	07.10.90	
Fluoride (340.2)		
Fluoride, mg/l	0.35	
Date Analyzed	07.10.90	
Chlorinated Dioxins & Furans (8280)		
Tetra CDD, ug/l	<0.0050	
Tetra CDF, ug/l	<0.0050	
Penta CDD, ug/l	<0.0050	
Penta CDF, ug/l	<0.0050	
Hexa CDD, ug/l	<0.0050	
Hexa CDF, ug/l	<0.0050	
Hepta CDD, ug/l	<0.010	
Hepta CDF, ug/l	<0.010	
Octa CDD, ug/l	<0.010	
Octa CDF, ug/l	<0.010	
Dioxin-2,3,7,8-TCDD, ug/l	<0.0050	
Surrogates - Dioxins		
Internal Standard (2,3,7,8-TCDD), % Rec.	81 %	
Date Extracted	07.07.90	
Date Analyzed	07.17.90	

REFERENCE: EPA SW-846 3rd Edition, 1986

<u>General Parameters</u>	<u>Concentration, mg/l</u>				
	<u>Well 1</u>	<u>Well 2</u>	<u>Well 3</u>	<u>Well 4</u>	<u>Well 5</u>
pH, S.U.	6.4	6.7	6.7	6.9	6.9
Total Dissolved Solids	3500	7900	5000	11000	26000
Sulfate	610	610	490	780	1200
Chloride	1060	4300	1700	4500	2700
Total Organic Carbon	<1.0	<1.0	3.0	<1.0	<1.0
Fluoride	0.28	0.25	0.25	0.73	0.23

RCRA Hazardous Waste Numbers

<u>Waste Parameter</u>	<u>CAS No.</u>	<u>Hazardous Waste No.</u>
Hexachlorobutadiene	87-68-3	U128
1,4 - Dichlorobenzene	106-46-7	U072
1,1 - Dichloroethene	75-35-4	U078
1,1 - Dichloroethane	75-34-3	U076
Chloroform	67-66-3	U044
1,1,1- Trichloroethane	71-55-6	U226

March 6, 1968

TO: J. L. Barrer

FROM: A. D. Bergman

SUBJECT: Pickle Liquor - Waste Lake No. 3 Flow Pattern Survey

INTRODUCTION

After one year of pickle liquor disposal in the small pit in Waste Lake No. 3, it was deemed necessary to investigate the drainage patterns. It became obvious before test boring could be put into effect that the pit drainage was concentrated in one general direction. This was evidenced by a sink hole, which was not unexpected. Previous laboratory work indicated the total amount of solid material would not change significantly due to the formation of iron hydroxide, but the volume could decrease thereby causing a shrinkage of volume occupied by the total solids.

CONCLUSIONS

The limited survey indicated that the pit drainage patterns follow the flow patterns exhibited during the waste lake filling. The major flow followed a weakened or fissured zone caused by drying out of the original waste material. Limitation of time and money curtailed investigation of this vein to its extremities.

From this limited survey, it can be concluded that there is no unreacted pickle liquor at the bottom of the waste lake. No pockets of unreacted pickle liquor were found within the uncompressed drainage area. The drainage area can be estimated to extend approximately 300 feet from the center of the disposal pit.

The continued disposal of pickle liquor for several additional years appears a definite possibility if periodically the point of dumping or injection is relocated.

DISCUSSION

The drainage pattern survey was investigated by auguring from the waste lake surface to the bottom and intermittently collecting split-spoon samples for observation. Fifteen borings were made in this manner. Initial calculations indicated that the drilling pattern should encircle the disposal pit, on the south side, approximately 41 feet away. This pattern assumed a 100 percent uniformly reacted zone, from the surface to bottom of the waste lake.

As the survey progressed, it became obvious this assumption was erroneous.

The resultant drilling pattern shown in the attached exhibit was an attempt to define the existing drainage pattern using existing and installed roadways.

All depth measurements were taken using the waste lake surface as zero.

March 6, 1943

The test boring data indicate the drainage pattern to extend beyond 150 feet from the center of the dumping pit, in a southeasterly direction. The reacted material was found to range from 12 feet to 20 feet in depth. This zone was not completely reacted, but beds of reacted material were contained within this zone.

The two borings (No. 9 & 15) most removed from the pit had extremely thin shows of color at 24 and 25 feet. This, however, is not enough to say that effective drainage had not taken place at this depth at some other point.

None of the fifteen borings provided evidence of unreacted pickle liquor reaching the bottom of the waste lake. If estimates using laboratory data are correct, the most distant borings made are only half the lateral distance calculated for a uniformly reacted bed one foot thick. Should the drainage angle of approximately 5 degrees be maintained, a distance of about 300 feet would be required for the pickle liquor to reach the bottom of the waste lake.

We can assume from the test borings that locations 3, 4, 6, 11, 12, 13 and 15 are interconnected with the sink hole. Assuming the average thickness of reacted material to be 3 feet for this area, we can account for 17 to 20 percent of the disposed pickle liquor.

Data from this limited survey shows categorically that no unreacted pickle liquor is on the bottom or reaching the bottom of the waste lake. It can definitely be stated that the pickle liquor does not drain away from the dumping pit in a uniform manner. The drainage observed appears to be following run-off patterns comparable to those seen on active waste lake No. 4 surface.

This survey uncovered no evidence indicating unreacted pickle liquor being concentrated in pockets within or on the bottom of the waste lake.

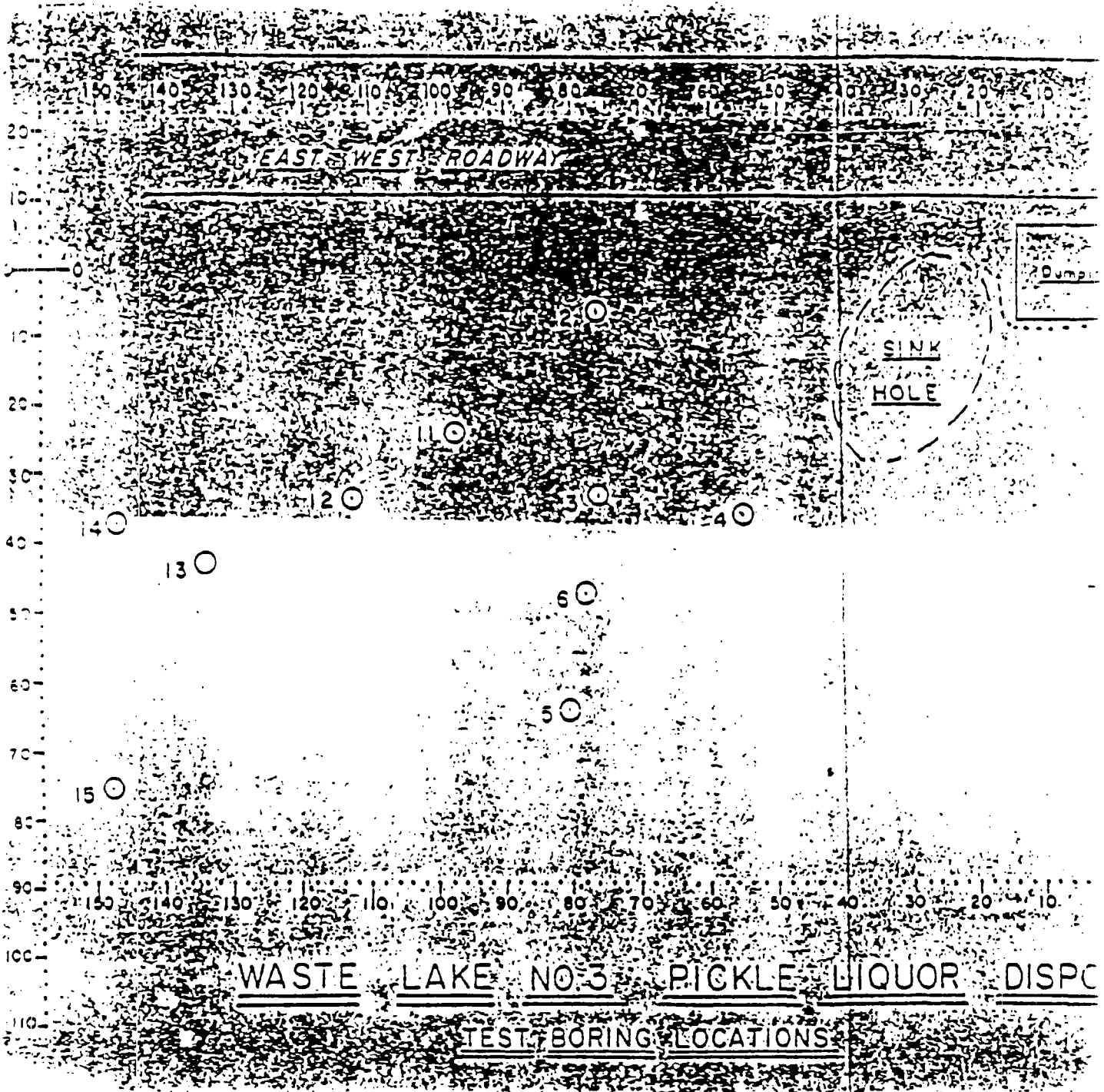
It is recommended that a manifold dispersing system for disposal be used for wider distribution into the waste lake. In lieu of a manifold system, it is suggested that the dumping pit be relocated periodically to assure uniform usage of the waste lake material.

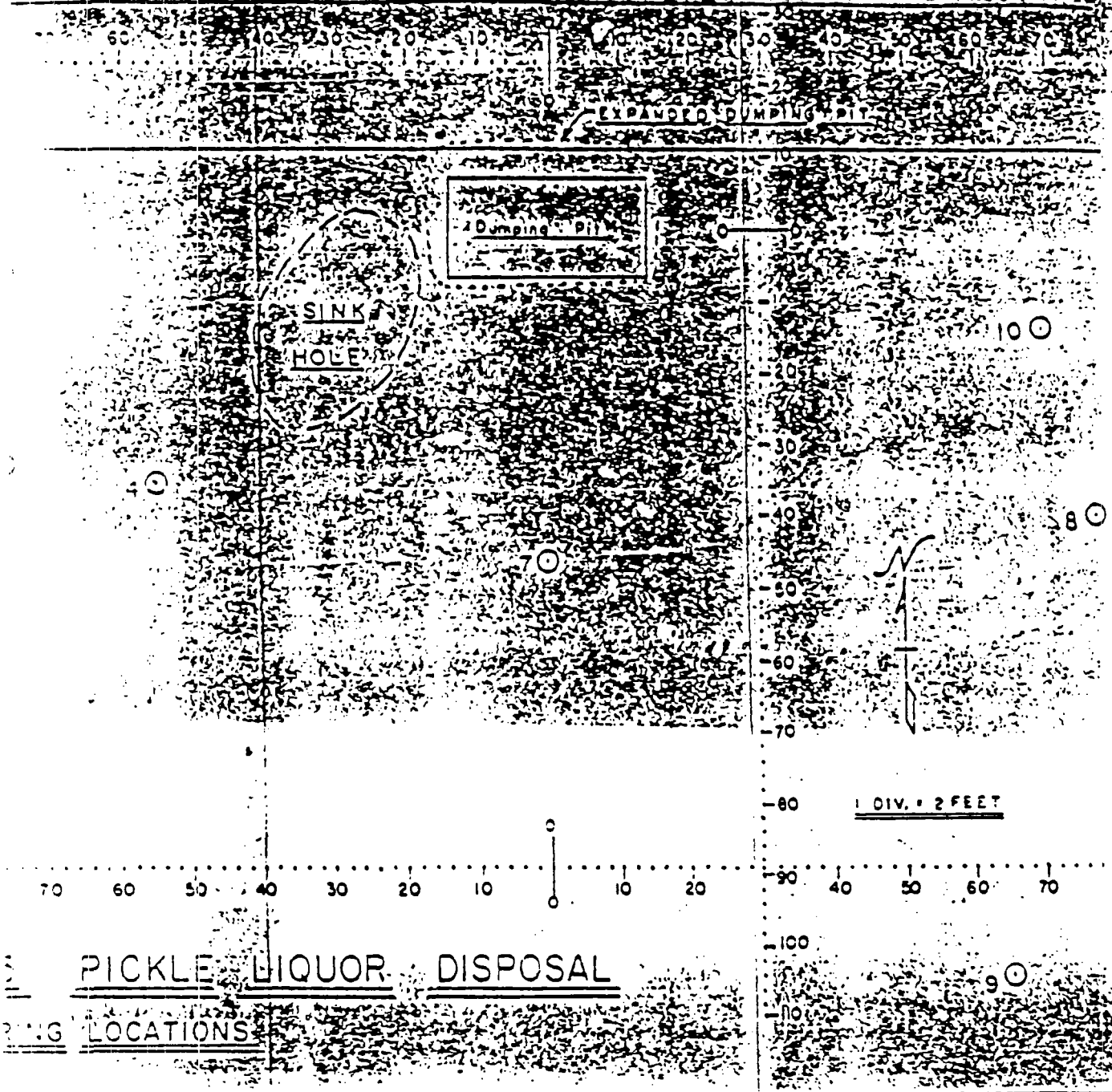
Attached are the following exhibits:

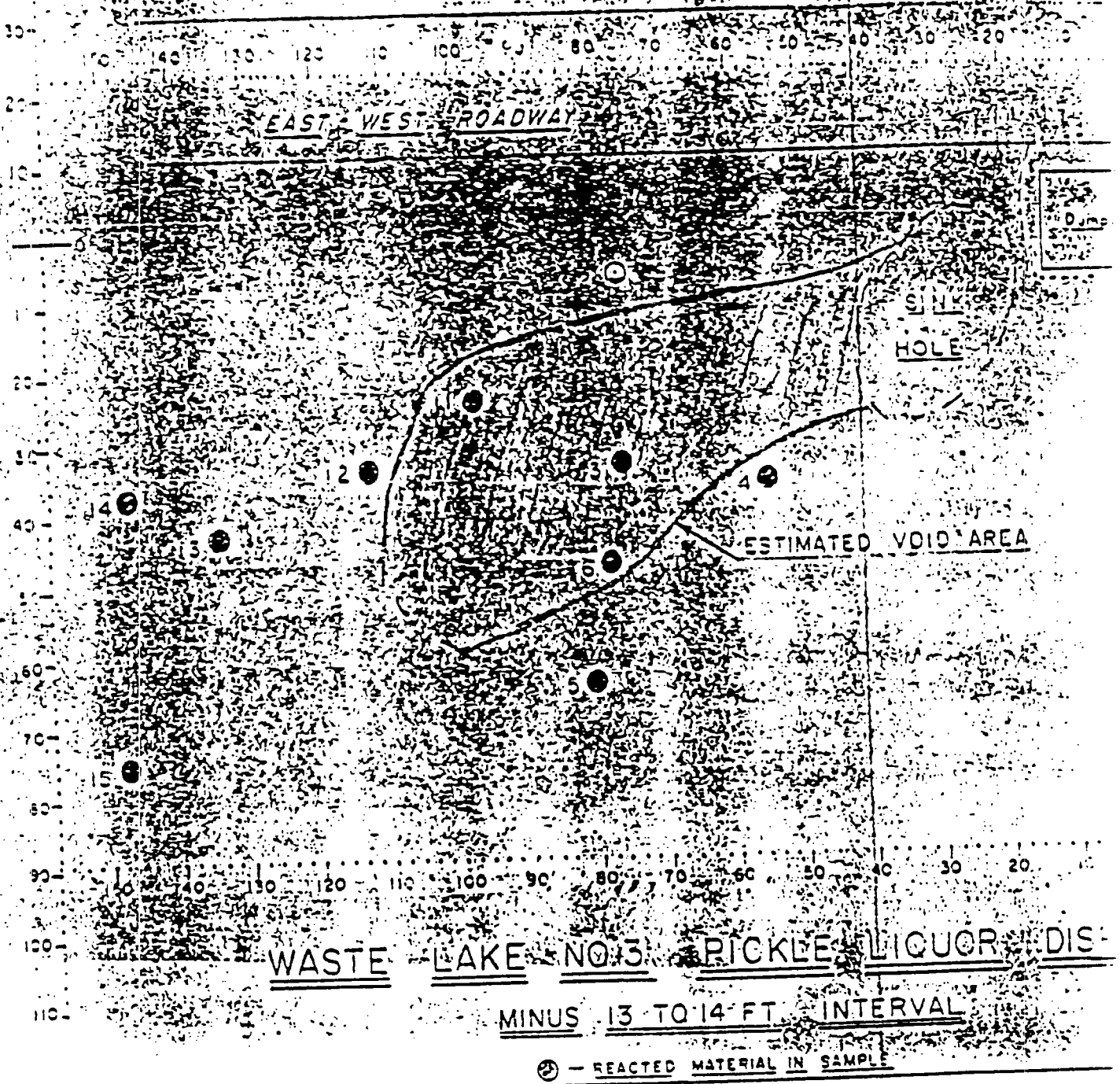
1. Location of test borings with respect to center of dumping pit.
2. Test locations showing reacted material at xmins 13 to 14 ft. interval.
3. Test locations showing reacted material at xmins 14 to 15 ft. interval.
4. Test locations showing reacted material at the xmins 15 to 20 ft. interval.

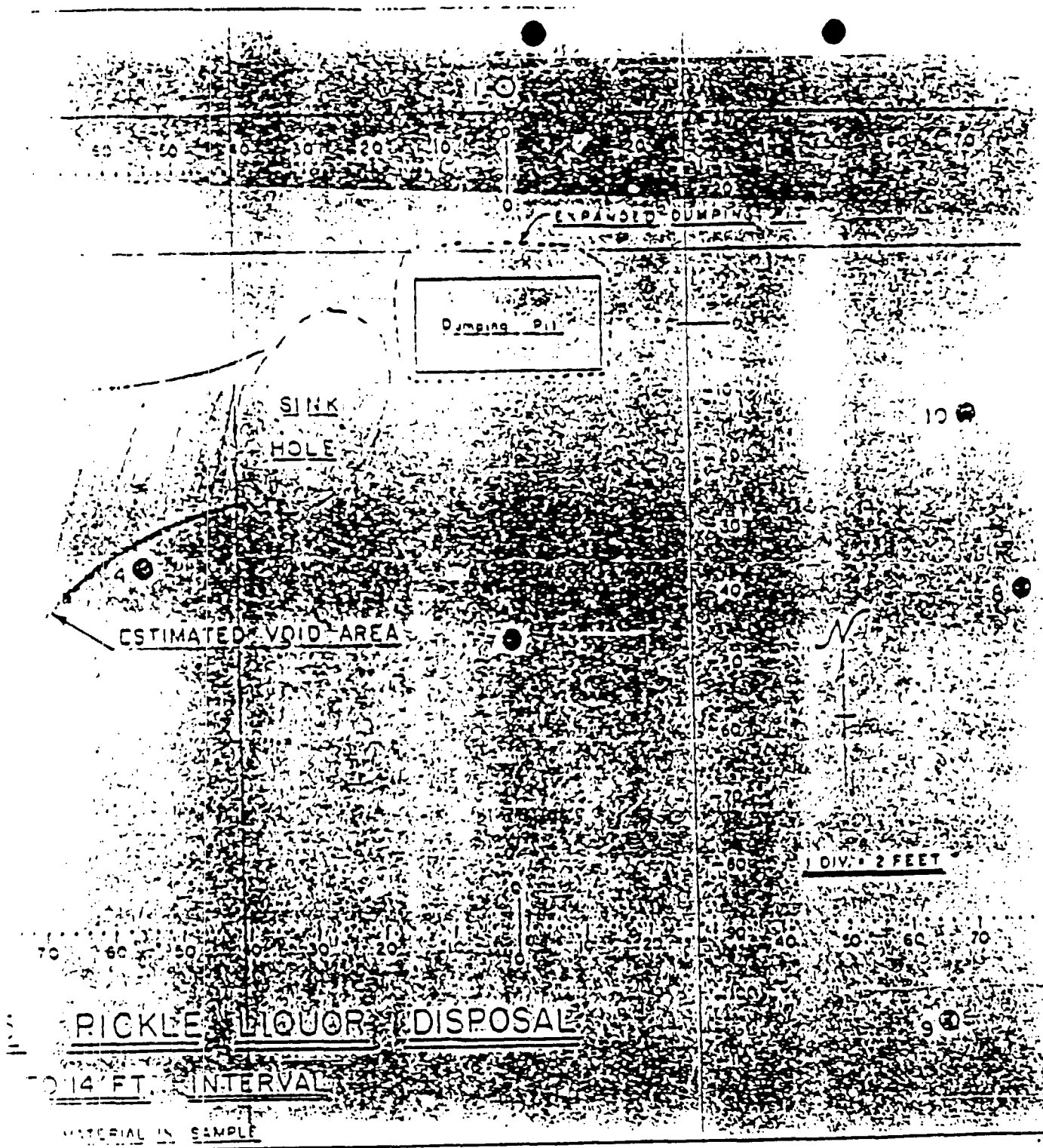
A. D. Bergman
A. D. Bergman

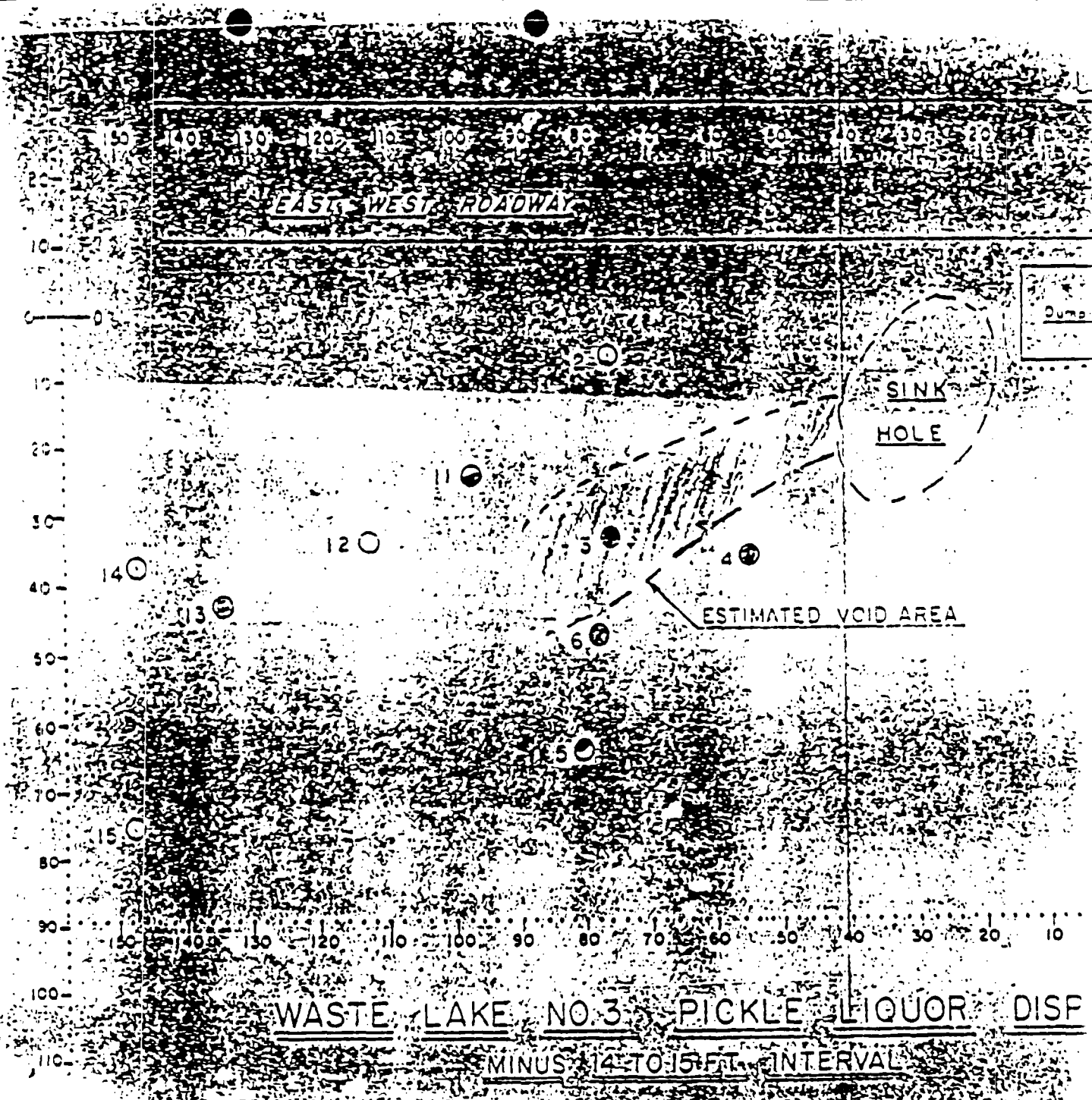
ADB:mf
Enc.-4



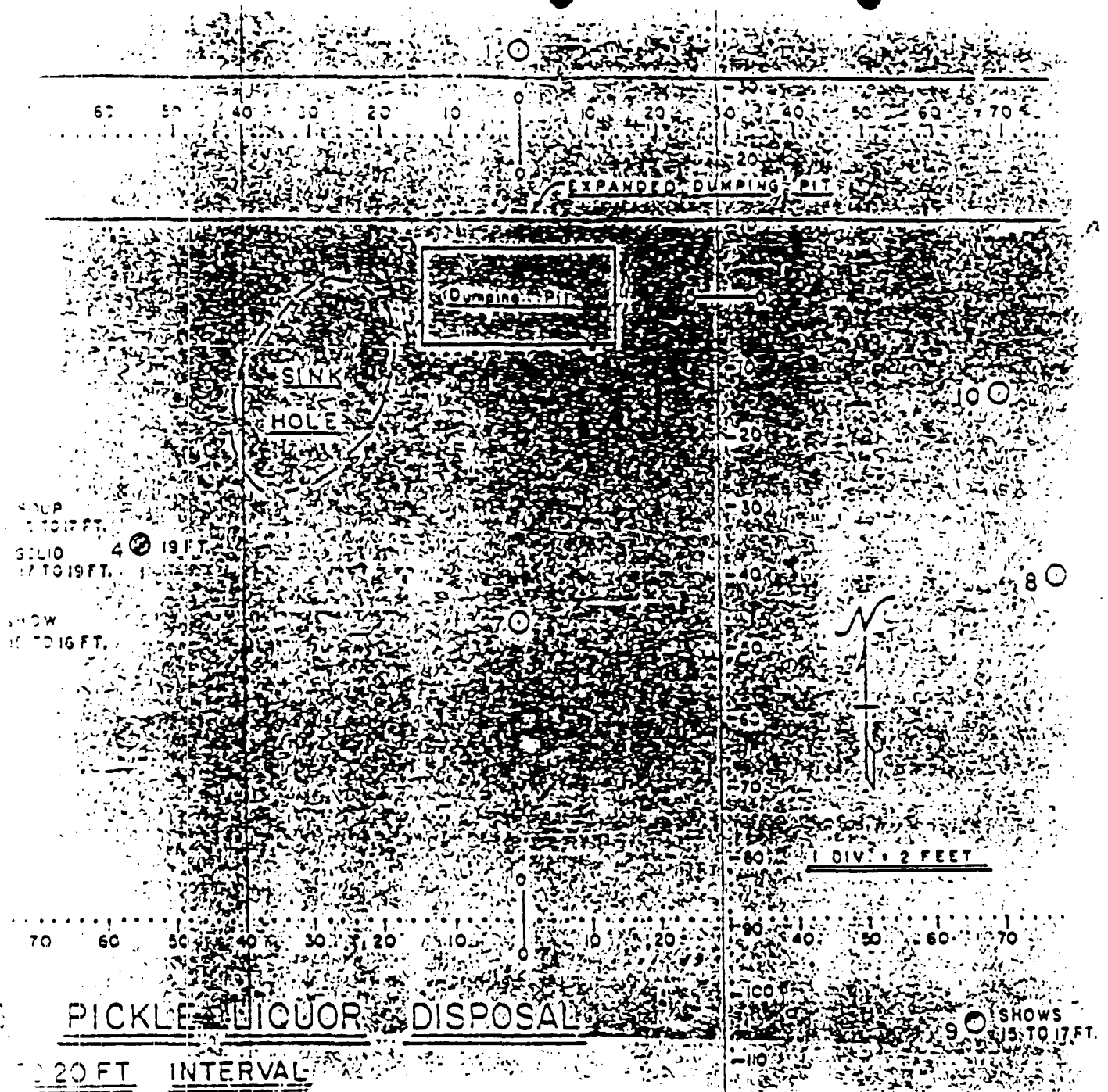








① — REACTED MATERIAL IN SAMPLE



WASTE LAKE NO. 3 — PICKLE LIQUOR DISPOSAL

TEST BORING VERTICAL SECTIONS

DEPTH BELOW SURFACE — FEET







PICKLE LIQUOR DISPOSAL

ENGINEERING VERTICAL SECTIONS



LEGEND

-  - Reacted waste lake solids
-  - Void
-  - Soupy soft reacted solids
-  - Paper thin horz. & vertical lines reacted in solids

DATA

Revised Edition

EXHIBIT 25

ANALYSIS OVERFLOW RIVER

S.G.		pH		Free Acid		Spend Lines		Date	Components	Overflow #1	Overflow #2	Over
				HCl %		Introduced						
5.2	1.150		0.3		1.55%			1/19/66	pH			
5.1	1.159		0.9		1.13%				Cl ⁻ mg/L			
5.2	1.154		0.9		1.10%			2/7/66	pH			
5.1	1.182		0.2		1.23%				Cl ⁻ mg/L			
5.1	1.181		0.3		1.01%			3/7/66	pH			
5.1	1.182		0.5		1.16%				Cl ⁻ mg/L			
5.1	1.182		0.9		0.09%			4/7/66	pH			
5.1	1.159		0.6		0.21%				Cl ⁻ mg/L			
5.1	1.176		0.6		0.18%			5/7/66	pH			
5.1	1.172		0.6		0.21%				Cl ⁻ mg/L			
5.1	1.176		0.8		0.10%			6-6-66	Fe mg/L	0.69		
5.1	1.170		0.6		1.07%			6-7-66	Fe mg/L	0.75	0.41	
5.1	1.189		0.3		0.31%			6-8-66	Fe mg/L		0.29	
5.1	1.189		0.4		0.32%			6-9-66	Fe mg/L		0.39	
5.1	1.230		<0.0		0.86%			6-10-66	Fe mg/L	0.20	0.18	
5.1	1.205		<0.0		0.16%			6-11-66	Fe mg/L		0.39	
5.1	1.211		0.2		0.35%			6-12-66	Fe mg/L	0.49	1.1	
								6-13-66	Fe mg/L	0.21	0.59	
								6-14-66	Fe mg/L	0.29	0.35	
								6-15-66	Fe mg/L	0.45	0.31	
								6-16-66				
								6-17-66				
								6-18-66				
								6-19-66				
								6-20-66	Fe mg/L	0.24		
								6-21-66	Fe mg/L	0.94		
								6-22-66	Fe mg/L	NS		
								6-23-66	Fe mg/L	NS		
								6-24-66	Fe mg/L	NS		
								6-25-66	Fe mg/L			
								6-26-66				
								6-27-66				
								6-28-66				
								6-29-66				
								6-30-66				

Top Floor

Overflow - River Water

SPENT TIME INTRODUCED	Date	Component	Overflows	Overflows	Overflows	Overflows	Overflows	WASTE WATER OVERFLOW
	1/19/66	pH					9.3	11.5
		Cl, mg/L					2,769	15,210
	2/7/66	pH					8.6	11.7
		Cl, mg/L					1,633	15,631
	3/7/66	pH					8.8	11.4
		Cl, mg/L					717	16,907
	4/7/66	pH					9.2	11.3
		Cl, mg/L					30	80,514
	5/7/66	pH						
		Cl, mg/L						
C22	6-6-66	Fe, mg/L	Consistent	0.69				
-	6-7-66	Fe, mg/L	0.75	0.41	0.21	0.32	0.07	
-	6-8-66	Fe, mg/L		0.29	0.18	0.11	0.11	
P.06	6-9-66	Fe, mg/L		0.39	0.25	0.14	0.06	
P.56	6-10-66	Fe, mg/L	0.20	0.11	0.11	0.12	0.06	
<0.01 Time	6-18-66	Fe, mg/L		0.29	0.20	0.21	0.18	
P.26	6-19-66	Fe, mg/L	0.49	1.1	1.1	0.20	0.14	
T.1	6-25-66	Fe, mg/L	0.21	0.59	0.35	0.14	0.14	
A.77	6-26-66	Fe, mg/L	0.29	0.35	0.10	0.10	0.14	
	6-27-66	Fe, mg/L	0.45	0.31	0.35	0.14	0.20	
	6-28-66	Fe, mg/L						
	6-29-66	Fe, mg/L						
	6-20-66	Fe, mg/L	0.24		0.19	0.14	0.10	
	6-21-66	Fe, mg/L	0.94		0.30	0.24	0.14	
	6-22-66	Fe, mg/L	NS		0.24	0.07	0.07	
	6-23-66	Fe, mg/L	NS		0.28	0.17	0.15	
	6-24-66	Fe, mg/L	NS		0.28	0.07	0.07	
	6-27-66	Fe, mg/L			0.385	0.105	0.157	
	6-28-66	Fe, mg/L			0.350	0.105	0.157	
		Fe, mg/L			0.315	0.175	0.200	

[illegible]

		7-1-66							0.270	0.175	0.125
		7-5-66	Fe, μ /l						0.270	0.140	0.175
0.05		7-6-66							0.455	0.192	0.157
		7-7-66							0.397	0.105	0.070
		7-8-66							0.997	0.175	0.105
0.01		7-14-66	Fe, μ /l						0.525	0.140	0.210
		7-15-66							0.420	0.157	0.210
		7-15-66							2.151	0.192	0.107
0.1		7-14-66							0.45	0.175	0.250
		7-15-66							0.752	0.137	0.239
		7-19-66	Fe, μ /l						0.525	0.052	0.175
0.25		7-19-66							1.400	0.070	0.220
		7-20-66							0.752	0.157	0.140
		7-21-66							0.472	0.105	0.105
		7-22-66							0.717	0.140	0.105
		7-25-66							0.552	0.105	0.152
0.27 (7-27)		7-25-66							0.700	0.105	0.105
		7-27-66							0.542	0.105	0.203

DIAMOND-SHAMROCK CORP. INC.

Formerly

Diamond Alkali Company

CENTRAL OFFICE 10000 ROUTE 100, PAINESVILLE, OHIO 44061 (419) 338-4400



*Painesville
Waste Lake
State Corp*

APR 11 1968

Mr. George H. Eagle
Chief Engineer
Ohio Dept. of Health
P. O. Box 118
450 East Towne Street
Columbus, Ohio

POLLUTION FILES	
PLANT	2-CT-1 C/16
SUBJECT	

Dear George:

Disposal of Steel Plant HCl Acid-Iron Wastes at
Diamond Shamrock Corporation's Painesville Works

This letter will confirm my conversation with Mr. J. B. Richards concerning the disposal of steel plant HCl acid-iron wastes at our Painesville Works. If you will recall, your office approved the disposal of these wastes into Waste Lake No. 4 on December 17, 1965. The approval limited the amount of HCl acid-iron wastes that may be placed in Waste Lake No. 4 to 72,000 gallons per day. This figure was based on data developed from laboratory tests and the average flow of alkali wastes entering the Waste Lake. Starting on June 23, 1966, approximately 643 gallons per day of HCl acid-iron wastes were placed in Waste Lake No. 4. On February 7, 1967, we discontinued the disposal of HCl acid-iron wastes in Waste Lake No. 4. Instead, we disposed of the HCl acid-iron wastes by placing them in our Waste Lake No. 3, which has been abandoned for about 40 years and has the dimensions of approximately 84 acres by 22 feet deep. The HCl acid-iron wastes permeates the Waste Lake's deposits and reacts with the alkaline materials of the Waste Lake, with no discharge to the waters of the state. (The neutralized acid-iron wastes become a part of the Waste Lake's deposits.) The amount of acid-iron wastes placed in Waste Lake No. 3 increased to 18,143 gallons per day on November 21, 1967, when Jones and Laughlin Steel Corporation's wastes were added. We received an additional 20,000 to 25,000 gallons per day from Republic Steel starting on April 1, 1968 and an additional 2,357 gallons per day is expected to be received from Youngstown Sheet and Tube starting on May 1, 1968, making the total daily input of 40,500 to 45,500 gallons per day. Test borings have been conducted in Waste Lake No. 3 to determine the effects of the acid-iron wastes on the Waste Lake. So far, the surveys indicate that the flow patterns of the acid-iron wastes follow the flow patterns exhibited during the Waste Lake filling some 40 years ago. No pockets of unreacted acid-iron wastes were found, and the continued disposal of these wastes for several additional years appears to be a definite possibility. Similar tests will be conducted from time to time.

The purpose of this letter is to keep you informed on our activities in this area, and to request clarification of the limitations given in your letter of December 23, 1965. In view of the changed procedure in neutralization of the pickle liquor, we want to raise the quantity limitation established for Waste Lake No. 4. From the testing reported above, it appears to us that this limitation could be raised significantly or even eliminated with proper monitoring. We suggest that if you must impose a maximum quantity, that we might ultimately approach 250,000 GPD and propose that as a maximum. (We would also like to keep our limitation of 72,000 gallons per day in Waste Lake No. 4 in addition to the amount allowed for Waste Lake No. 3.)

Sincerely yours

Richard D. Hall
Richard D. Hall, P.E., P.S.
Environmental Control Engineer

Oscar Messers, M. O. Kirk
 J. G. Lang
 J. J. Plummer
 C. R. Fowler
 J. R. Puschaver
 W. R. Rockwell
 W. R. Taylor

MEMORANDUM

February 8, 1968

TO: FILE

FROM: C. E. Stewart

SUBJECT: REPUBLIC STEEL

POLLUTION FILES	
PLANT 200	C 9/1

Republic Steel will be ready to return pickle liquor effluent from their #1 pickle line on April 1, 1968. The volumes of effluent to be returned have been estimated to be between 15-25,000 gallons per day. At this time it is estimated that the effluent will be twice the amount of virgin acid going into this pickle line.

The #3 84" pickle line will be converted from sulfuric to muriatic acid sometime in August of this year. At that time a like quantity of effluent would be available from this line.

A third new 84" line is scheduled for completion sometime in the fourth quarter of 1968. This will be accomplished if there is no steel strike in the summer of this year. The new line, though 84" in size, will have a greater steel capacity and could possibly generate greater volumes of effluent than that generated in the #1 line.

In summary it looks like we could expect Republic to be returning somewhere between 45 and 75,000 gallons of effluent per day to Painesville by the end of 1968 if their conversions and expansions take place as scheduled.

Jack McCartney of Republic explained they have secured a permit from the State which will permit them to dispose of their effluent by returning it to us at Painesville for a period of two years. At that time it is Republic's intention to construct a reclaiming unit. This applies only to the Cleveland Mill.

The Republic Warren, Ohio Mill has already let contracts for the construction of a reclaiming unit. We will not be involved in the pickup and disposal of effluent from this location.

Although the dates for the two 84" lines are somewhat in doubt it is quite certain that we will start delivering Republic's entire HCl requirement for the 98" #1 line on April 1 of this year.

C. E. Stewart
C. E. STEWART

CES/rj

cc: H. B. Clark J. W. Jacobs W. J. Esselstyn
J. P. Hyde C. R. Powell R. H. Wilson, Jr.
T. C. Schwarz W. R. Taylor

Diamond Alkali Company

GENERAL OFFICES, UNION COMMERCIAL BUILDING, CLEVELAND, OHIO 44115, TELEPHONE (216) 4100



September 8, 1966

Mr. George H. Eagle
Chief Engineer
Division of Engineering
Ohio Department of Health
Box 118
Columbus, Ohio 43216

Dear Mr. Eagle:

We are hereby submitting our monthly report on the acid-iron wastes discharged into Waste Lake No. 4, Painesville Plant, for the months of June and July, 1966.

With your concurrence, we are expecting to double the amount of acid-iron wastes discharged into the Waste Lake in the near future, under the conditions given in your letters of December 23, 1965, April 13, 1966, and May 24, 1966.

These data are submitted in compliance with our permit conditions and your letters stated above.

Sincerely yours,

DIAMOND ALKALI COMPANY

Richard D. Hall
Richard D. Hall, P.E.
Staff Engineer

RDH:kk
Attachments

Diamond Alkali Company
Fairport, Ohio
June 30, 1966

Acid-Iron Wastes Discharged to Waste Lake No. 4

No.	Date	Weight, g. FeCl ₃	Total Fe	Sp Gr	pH	HCl
1	6-23-66	34,550	17.03	7.54	1.150	0.3 - 0.55

Waste Lake No. 4 Effluent and Grand River Analysis

Date	Total Iron Content, mg/l	Waste Lake	Grand River	Grand River	Acid-Iron Wastes Discharged to Waste Lake?
			Blow Off	Chlor. & Bridge	
6-6-1966	0.09				No
6-7-1966	0.26		0.32	0.07	"
6-8-1966	0.24		0.11	0.11	"
6-9-1966	0.32		0.14	0.06	"
6-10-1966	0.25		0.14	0.08	"
6-13-1966	0.30		0.21	0.18	"
6-14-1966	0.90		0.20	0.14	"
6-15-1966	0.38		0.14	0.14	"
6-16-1966	0.25		0.10	0.14	"
6-17-1966	0.37		0.14	0.22	"
6-20-1966	0.22		0.14	0.10	"
6-21-1966	0.62		0.24	0.14	"
6-22-1966	0.28		0.07	0.07	"
6-23-1966	0.28		0.17	0.15	Yes
6-24-1966	0.28		0.07	0.07	No
6-27-1966	0.385		0.105	0.157	No
6-28-1966	0.350		0.105	0.157	No
6-29-1966	0.315		0.175	0.297	No
6-30-1966	0.297		0.140	0.140	No

Diamond Alkali Company
Fairport, Ohio
July, 1966

Acid-Iron Wastes Discharged to Waste Lake No. 4

Acid-Iron Wastes Analysis						
No.	Date	Weight	FeCl ₃	Total Fe	Sp Gr	pH
1	7-1-1966	34,300	17.17	7.43	1.159	0.9
2	7-8-1966	34,400	18.84	7.95	1.154	0.9
3	7-12-1966	34,400	19.02	8.40	1.182	0.2
4	7-13-1966	34,600	18.50	8.20	1.181	0.3
5	7-15-1966	35,250	19.17	8.47	1.182	0.5
6	7-19-1966	35,050	19.10	8.43	1.182	0.9
7	7-21-1966	34,800	16.99	7.51	1.159	0.6
8	7-25-1966	35,550	18.62	8.24	1.176	0.6
9	7-28-1966	35,250	18.58	8.23	1.177	0.6
10	7-29-1966	34,800	18.58	8.19	1.176	0.8

Waste Lake No. 4 Effluent and Grand River Analysis

Total Iron Content, mg/l				
Date	Waste Lake	Grand River	Grand River	Acid-Iron
		Blow-Off	St. Clair	Wastes Dis-
		Bridge	Bridge	charged to
				Waste Lake?
7-1-1966	0.280	0.070	0.105	Yes
7-5-1966	1.204	0.140	0.175	No
7-6-1966	0.435	0.192	0.157	No
7-7-1966	0.297	0.105	0.070	No
7-8-1966	0.997	0.175	0.105	Yes
7-11-1966	0.525	0.140	0.210	No
7-12-1966	0.420	0.157	0.210	Yes
7-13-1966	2.747	0.192	0.297	Yes
7-14-1966	2.045	0.175	0.350	No
7-15-1966	0.752	0.137	0.239	Yes
7-18-1966	0.525	0.052	0.175	No
7-19-1966	1.400	0.070	0.220	Yes
7-20-1966	0.700	0.157	0.140	No
7-21-1966	0.472	0.105	0.105	Yes
7-22-1966	0.734	0.140	0.105	No
7-23-1966	0.594	0.105	0.157	Yes
7-26-1966	0.761	0.105	0.105	No
7-28-1966	0.498	0.105	0.253	Yes
7-29-1966	0.814	0.140	0.140	Yes

Diamond Alkali Company

GENERAL OFFICES • UNION COMMERCE BUILDING • CLEVELAND, OHIO 44114 • TELEPHONE 621-4100



March 18, 1966

Mr. George E. Eagle
Chief Engineer
Division of Engineering
Ohio Department of Health
P. O. Box 118
Columbus, Ohio 43216

Dear Mr. Eagle:

SUBJECT: Disposal of Steel Plant HCl Acid-Iron Wastes in Diamond Alkali Company's Painesville Plant No. 4 Waste Lake

This letter relates the details of a telephone conversation between Mr. W. L. Taylor of our office and Mr. J. E. Richards of your office on March 9, 1966.

If you will recall, your Department concurred in the disposal of steel plant HCl acid-iron wastes in Diamond Alkali Company's Painesville Plant No. 4 Waste Lake in a letter dated December 23, 1963, with conditions attached. The first condition requires "that hydrochloric acid pickle liquor wastes from only plants located in the Lake Erie drainage basin be included in the program".

Since the issuance of that concurrence, we find that the steel plants in the Lake Erie basin will not be ready to dispose of their acid-iron wastes in this manner for some time. As matters now stand, Jones and Laughlin Steel does not expect to be ready until next year, and Republic Steel will not be ready until after next year.

One steel plant, Youngstown Sheet and Tube Company, Campbell, Ohio, on the other hand, will be ready in approximately three (3) months and would like to temporarily dispose of their acid-iron wastes in our waste lake, but this is prohibited by Condition No. 1.

We are cognizant of the reasoning behind Condition No. 1 and are concerned about the problem just as much as you are, if not more. However, we would like to try this method of disposal with Youngstown Sheet and Tube's acid-iron wastes this year in order to find out whether or not any problems will develop so that we will know whether or not to proceed with the acceptance of other acid-iron wastes. The discharge of Youngstown Sheet and Tube's wastes into our waste lake is not expected to affect Lake Erie. We are reasonably sure the iron will be removed and that the chloride increase will be insignificant compared to the chloride presently discharged into Lake Erie. On the other hand, a great benefit should be realized in the Mahoning River from both the iron standpoint and the chloride standpoint.

Diamond Alkali Company



Mr. George E. Bagley
Re Disposal of Steel Plant No. 1 Acid-
Iron Sludge in Diamond Alkali
Company's Fairview Plant No.
1 Waste Lake

Page 2
March 10, 1966

Therefore, we would like your permission to discharge Youngstown Sheet and Tube Company's acid-iron wastes into our waste lake on an experimental basis so as to determine the feasibility and practicability of this operation. Of course, the other limitations and conditions listed in your letter of December 23, 1965, applicable to acid-iron wastes from the Lake Erie watershed, would apply to the Youngstown Sheet and Tube wastes. You are again assured of our desire to cooperate in solving a temporary problem in pollution abatement. If you want to discuss this proposal, our personnel are available at your convenience.

Sincerely yours,
WILLIAM ALKALI COMPANY

Director of Engineering

cc: Messrs. J. W. Jarvis
M. O. Kirk
S. G. Lane
J. J. Lukas
C. R. Powell
S. Puschaver

JAMES A. REEDER, Governor

State of Ohio

ROBERT W. ARNOLD, M.D.
Director of Health

450 East Town Street
P.O. Box 118
Columbus, Ohio 43218



Department of Health

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Re: Painesville
Industrial Wastes

December 23, 1965

Diamond Alkali Company
Union Commerce Building
Cleveland, Ohio 44114

Attention: Mr. F. E. Rockwell
Director of Engineering

Gentlemen:

Under date of October 26, you wrote us further with reference to the proposal of your company to haul waste hydrochloric acid pickle liquors to your Painesville plant for disposal. Subsequent to your letter, we conferred with your Mr. W. E. Taylor in regard to the proposal.

It was agreed during our meeting with Mr. Taylor that we would extend the concurrence of this Department to your proposal subject to the following conditions:

- (1) that hydrochloric acid pickle liquor wastes from only plants located in the Lake Erie drainage basin would be included in the program.
- (2) that our concurrence should be renewed on a year-to-year basis.
- (3) that the program be initiated in a step-wise manner in accordance with the following schedule: that the amount of waste acids to be handled in each succeeding semi-monthly period to be as follows: 1st. 10,000, 2nd. 20,000 3rd. 40,000, 4th. 60,000 and 5th. 72,000 gallons.
- (4) that normal analyses performed on the effluent from the #4 Waste Lake include information on total iron, as well as the constituents normally reported.
- (5) an evaluation should be made by company personnel at the end of the first three months' period and submitted to the Division of Engineering, Ohio Department of Health.
- (6) the Diamond Alkali Company agrees to discontinue the operation if it is determined advisable by the Division of Engineering, Ohio Department of Health.

Diamond Alkali Company
December 23, 1965

Please indicate your acceptance of the above conditions.

[Handwritten signature]
Camp H. R. Rife
CMAA

CC - Northeast District Office

March 1, 1967

Mr. S. G. Lant -- Palmsville

Mr. R. D. Hall

Cleveland, C. E.

Disposal of Steel Mill

Spent HCl Pickle Liquor

Re: Palmsville Water Pollution
Spent Pickle Liquor

I talked to Mr. J. E. Richards, Engineer-in-Charge, Ohio Department of Health (via telephone) today (8:30 a.m. 3/1/67) and informed him of the work being done for disposing spent HCl pickle liquor in Waste Lake #3. I told Mr. Richards that we were playing around a little bit, that we had dug a hole in the settled, dry, solid material of the Waste Lake, and had dumped a couple truckloads of spent HCl pickle liquor into the hole. I informed him the acid was neutralized, the iron was precipitated out, and that there was no discharge. I further informed him that the results looked very good and that we are thinking about drilling a few shallow injection holes in the Waste Lake material for injecting spent HCl pickle liquor. He said to go ahead.

R. D. Hall
R. D. Hall

RDE:fk

POLLUTION FILES

PLANT 205

SUBJECT

JAMES A. RHODES, Governor

ROBERT W. ARNOLD, M.D.
Director of Health

450 East Town Street
P.O. Box 118
Columbus, Ohio 43216

State of Ohio



Department of Health

Re: Diamond Shamrock Company
Painesville, Ohio
Industrial Wastes

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J. P. Mann, Ph.D.
Philip T. Kline, M.D.

June 7, 1968

Mr. R. D. Hall
Diamond Shamrock Company
Union Commerce Building
Cleveland, Ohio 44115

Dear Mr. Hall:

In reply to your letter of April 17, 1968, and in accord with the discussion in Columbus on May 31, 1968, this letter may be considered as our concordance with your plan to use Waste Lake No. 3 for disposal of waste pickle liquor, as long as the liquor is completely neutralized and retained within the confines of the Waste Lakes.

Sincerely,

George H. Eagle
Chief Engineer

cc: Water Pollution Control Board
cc: Northeast District Office

POLLUTION FILES

✓ PLANT 25 | C/K
SUBJECT - |

Mr. R. H. Parsons

Mr. S. G. Lane

Titanium Waste Disposal.

We have so far received two shipments of titanium waste from the Electrode Corporation in Chardon. Each shipment was about 1200 gallons with a typical analysis of 20% HCl and 45 grams/liter of titanium. I understand they will accumulate this waste at a rate of about 120 gallons per day and due to storage limitations would expect to dispose of this material in shipments of 1200 gallons every ten days.

The two shipments so far received have been put into #4 Waste Lake via the dumping facilities provided for spent pickle liquor.

No significant adverse effects could be detected during unloading, such as objectionable odors or vapors. The waste reacts readily with the alkaline blow off material, forming a readily settleable precipitate and at least at these flows, no adverse effect could be detected as to clarity of the effluent from #4 Waste Lake and no measurable amount of titanium was found in this effluent.

Confirming bench tests have been run by mixing the titanium waste and blow off liquors in the approximate ratio of their respective dumping flow rates. Over 99% of the titanium precipitates out, leaving a clear water white effluent. No significant effects on the settling rates of the suspended material in the blow off were noted, except for a color change in the settled material.

It would appear, based on this data and experience, the titanium waste material can be satisfactorily disposed of at Painesville in #4 Waste Lake. This has been discussed with Chester Rudolf as the operation and maintenance of #4 Waste Lake is under his direct responsibility.

One other important consideration is still lacking and that is approval by the Ohio Water Pollution Control Board. Our industrial waste discharge permit is limited to the Painesville Works and does not cover disposal of waste such as this. This phase of the problem has been discussed with Bill Taylor, however, I understand he has not had any discussions with the State on the subject pending the study of the feasibility of using Painesville as a disposal site.

POLLUTION FILES

✓ PLANT 7505 C10

SUBJECT

To summarize briefly:

1. Present data and experience would indicate that the titanium waste material can be successfully handled in Ft. Verde Lake.
2. Modification of Palmsville Works discharge permit (State of Ohio) should be handled by Bill Taylor.

SG:iso

cc: Mr. J. E. Boracek
Mr. C. D. Rudolf
Mr. T. C. Schwarz
Mr. R. C. Sutter
Mr. W. E. Taylor ✓

C
O
P
Y

Interoffice Correspondence

To: GEORGE BARBIERI - TECH CENTER
From: JOHN A. LICATA - ROOM 1342 - CLEVELAND, OHIO
Date: OCTOBER 29, 1980
Subject: SOLID WASTE DISPOSAL LICENSE - PAINESVILLE

D 118-D

Enclosed is the Ohio EPA Solid Waste Disposal License for fly ash disposal at the Chromate Plant Site. Please keep it on file in your office at the Tech Center to be available should a county inspector ask to see it.

John A. Licata RB
JOHN A. LICATA

AL:lb
Attachment

- A. L. Gregoric/File - Room 1331 - Cleveland, Ohio - W/Att.
- W. C. Hutton/J. B. Worthington - Dallas, Texas Headquarters - W/Att.
- G. E. Pfeil - Room 1655 - Cleveland, Ohio - W/Att.
- J. G. Smeraldi - Room 1555 - Cleveland, Ohio - W/Att.

ORIGINAL

Re: Lake County
Painesville Township
Application for a Flyash Disposal Landfill
and Waiver - Diamond Shamrock Corporation
Received May 14, 1980
From Mr. John Licata

CERTIFIED MAIL

August 21, 1980

Mr. John Licata
Diamond Shamrock Corporation
1100 Superior Avenue
Cleveland, Ohio 44114

Gentlemen:

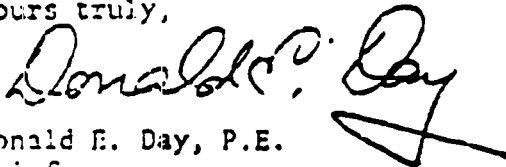
Enclosed is the Ohio EPA Permit to Install and accompanying Waiver which will allow you to install the described source in the manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Board of Review pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Board of Review within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency and the Environmental Law Division of the Office of the Attorney General within three (3) days of filing with the Board. An appeal may be filed with the Environmental Board of Review at the following address:

Environmental Board of Review
240 Parsons Avenue
Suite 123
Columbus, Ohio 43215

If you have any questions, please contact the Ohio EPA District Office or local air pollution control agency to whom you submitted your application.

Yours truly,



Donald E. Day, P.E.
Chief
Office of Land Pollution Control

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

AUG 21 1980

DED:pam

cc: Mr. Joel Lucia, Lake County Health Department
cc: Northeast District Office

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: William Davis Date: 8/21/80

The owner shall provide for the proper maintenance and operation of the solid waste disposal site or source in accordance with the provisions of Rule 3745-27 of the Ohio Administrative Code.

No liquids, sludges, or toxic or hazardous wastes shall be accepted for disposal.

Monitor wells shall be installed by the owner or operator. Please contact the Northeast District Office to confirm the details on locations, depths, and characteristics of such wells. Analyses of samples from the wells should be submitted to the Northeast District Office by December 1, 1980.

WAIVER: Pursuant to Ohio Administrative Code Rule 3745-27-11, there is hereby granted a WAIVER of Ohio Administrative Code Rule 3745-29-06(I)(5) in accordance with the detailed plans approved by the Director and in accordance with the terms and conditions listed below.

Terms and Conditions

- (a) If leachate is detected on the site, or is draining from the site, in such quantities that the Director or his authorized representative or the Health Commissioner believes, based on a review of geologic, hydrologic, engineering, and other factors, that a substantial threat of water pollution exists, the leachate shall be contained on the site and properly treated or shall be collected and transported from the site for proper treatment and all necessary action shall be taken to minimize, control, or eliminate the conditions which contribute to the production of leachate.
- (b) This WAIVER shall be REVOKED if, as determined by the Director, the granting of said WAIVER causes water pollution, creates a nuisance or health hazard, or if any term or condition of this WAIVER is violated.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Theron Davis Date 8/21/80

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

AUG 21 1980

C100886

Original

Re: Lake County
Painesville Township
Detail Plans of Flyash Disposal Landfill
for Diamond Shamrock Corporation
Plans Received May 14, 1980
From Diamond Shamrock Corporation

CERTIFIED MAIL

Mr. John Licata
Diamond Shamrock Corporation
1100 Superior Avenue
Cleveland, Ohio 44114

Issuance Date: August 21, 1980

Effective Date: August 21, 1980

Gentlemen:

The Ohio Environmental Protection Agency has reviewed the plans and specifications submitted pursuant to Ohio Revised Code Section 3734. These plans and specifications are approved subject to the conditions of compliance with all applicable laws, rules, regulations and standards. Further, all construction must be supervised by an engineer or expert qualified in such work.

This approval shall apply only to those facilities shown on the plans cited above.

The owner shall be responsible for the proper operation and maintenance of the solid waste disposal facilities.

Daily records of operation shall be maintained, and submitted to the Ohio Environmental Protection Agency at the end of each month.

The Lake County Health Department shall be notified so that construction of this project can be routinely inspected. Application for an operating license shall be made with the Lake County Health Department.

No sludges, liquids, or toxic or hazardous wastes shall be accepted for disposal.

WAIVER: Pursuant to Ohio Administrative Code Rule 3745-27-11, there is hereby granted a WAIVER of Ohio Administrative Code Rule 3745-27-06(I)(S) in accordance with the detailed plans approved by the Director and in accordance with the terms and conditions listed below.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: William Davis Date 8/21/80

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

AUG 21 1980

C100887

Terms and Conditions

- (a) If leachate is detected on the site, or is draining from the site, in such quantities that the Director or his authorized representative or the Health Commissioner believes, based on a review of geologic, hydrologic, engineering, and other factors, that a substantial threat of water pollution exists, the leachate shall be contained on the site and properly treated or shall be collected and transported from the site for proper treatment and all necessary action shall be taken to minimize, control or eliminate the conditions which contribute to the production of leachate.
- (b) This WAIVER shall be REVOKED, if, as determined by the Director, the granting of said WAIVER causes water pollution, creates a nuisance or health hazard, or if any term or condition of this WAIVER is violated.

The proposed facility may be constructed and operated only in accordance with plans approved by the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviation from the approved plans or the above conditions may lead to denial of an operating license or other sanctions and penalties provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities prove to be inadequate or cannot meet applicable standards.

Should there be any questions regarding the requirements, meaning or interpretations of any of the above which we may clarify, please contact the appropriate District Office of the Ohio Environmental Protection Agency.

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Board of Review pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed with the Environmental Board of Review within thirty (30) days after notice of the Director's action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency and the Environmental Law Division of the Office of the Attorney General within three (3) days of filing with the Board. An appeal may be filed with the Environmental Board of Review at the following address:

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: William Davis Date 8/21/80

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

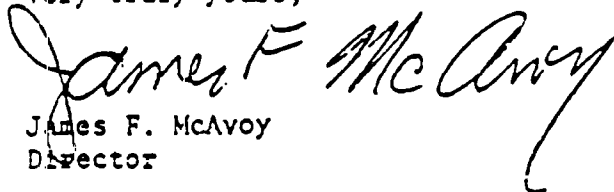
AUG 21 1980

C100888

Diamond Shamrock Corporation
August 21, 1980
Page Three

Environmental Board of Review
240 Parsons Avenue
Suite 123
Columbus, Ohio 43215

Very truly yours,


James F. McAvoy
Director

JFM:pam

cc: Mr. Joel Lucia, Lake County Health Department
cc: Northeast District Office

I certify this to be a true and accurate copy of the
official document as filed in the records of the Ohio
Environmental Protection Agency.

By: Therese Davis Date 8/21/80

Ohio Environmental Protection Agency
ENTERED DIRECTOR'S JOURNAL

AUG 21 1980

C100889

CHROME WASTE LAKE CLEAN-UP

FLY ASH DELIVERIES

<u>YEAR</u>	<u>NO. OF TRUCKLOADS</u>	<u>TONS OF FLY ASH</u>
1976	3,373	84,325
1977	5,621	140,525
1978	6,997	174,925
1979	7,439	185,975
1980 THRU JULY	<u>6,126</u>	<u>153,150</u>
TOTAL	<u>29,556</u>	<u>738,900</u>

TOTAL DOLLARS SPENT ON PROJECT
1976 THRU JULY, 1980 = \$842,000



Diamond Shamrock

January 27, 1981

Mr. Jeff Harris,
Ohio Environmental Protection Agency,
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Re: Diamond Shamrock Corporation
Painesville, Ohio

Dear Mr. Harris:

Attached is a solid waste disposal operation report for our landfill operation in Painesville, Ohio. During December, 1980, we received a total of 1,274 truckloads of fly ash at 25 tons per load. Based on a six day per week operation, we averaged 47 truckloads per day.

Sincerely,

DIAMOND SHAMROCK CORPORATION

JOHN A. LICATA,
ENVIRONMENTAL MANAGER,
ENVIRONMENTAL AFFAIRS,
INTERNATIONAL TECHNOLOGY UNIT

JAL:lb
Attachment

EXHIBIT 40

Solid Waste Disposal Daily Log of Operations

name of Facility. Land Reclamation Project Location Painesville, Ohio

Name of Operator Diamond Shamrock Corporation Address 1100 Superior Avenue, Cleveland, Ohio

Method of Disposal: Landfill X Incineration _____ Composting _____ Other _____

[illegible]

100-443887-100

022257

[illegible]

Lake County
General Health District
Administration Center
105 Main Street
Painesville, Ohio 44077

JAN 04 1981

INTERNATIONAL & DIVERSIFIED
TECHNOLOGY UNIT,
ENVIRONMENTAL SERVICES-CLEVELAND

(216) 352-0766
(216) 352-4435
(216) 946-2829
(216) 428-1194

December 28, 1981

Joel F. Lucia, R.S., M.P.H.
Health Commissioner

Ohio Environmental Protection Agency/
Lake County Solid Waste Annual Survey

Diamond Shamrock Company
1100 Superior Bldg.
Cleveland, Ohio 44114

Attn: John Licate

Re: Diamond Shamrock Flyash site

Dear Mr. Licate:

On November 24, 1981 Deborah Berg, R.S. (Environmental Scientist) and Jeff Harris, Solid Waste Scientist from the Northeast District of the Ohio EPA Office with Sheldon Munnings, R.S., Lake County General Health District Staff made an inspection of your solid waste site which is required by Section 3734.08 of the Ohio Revised Code.

The survey is an ongoing activity consisting of several visits to the Health District's landfills throughout the year. These inspections are made to find out if the Solid Waste Disposal Program is meeting all the review criteria as established by OAC 3745.37 of the Solid Waste Disposal Rules and to recommend to the Director of the OEPA if Lake County General Health District would remain on the list of approved Solid Waste Disposal Programs.

The following comments were reported to the Lake County General Health District for consideration regarding your solid waste site from OEPA:

Diamond Shamrock Flyash Disposal Landfill - This facility appears to operate in substantial compliance to the regulations and to the terms of the permit to install.

The above comments lend themselves to discussion of suggested goals for the Health District's 1982 Solid Waste Disposal Program.

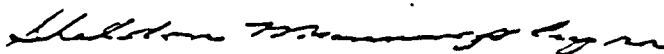
Dec. 23, 1981

This department recognizes and appreciates your efforts and involvement in having your solid waste site meet all the requirements in 1982.

If there are any questions, please call me.

Sincerely,

LAKE COUNTY GENERAL HEALTH DISTRICT



Sheldon Munnings, R.S.
Supervisor of Liquid and Solid Waste Programs

SM/ra

General Health District
Harrisonville 99.36 x 16
1979-80 General Noun

010221

PRIMARY POLICIES

INSURED	INSURER	POLICY PERIOD	POLICY NUMBER
Diamond Alkali Company	The Aetna Casualty and Surety Company	1/28/51-2/1/54	01AL16110RR
Diamond Alkali Company	The Aetna Casualty and Surety Company	2/1/54-2/1/57	01AL2266RR
Diamond Alkali Company	The Aetna Casualty and Surety Company	2/1/57-2/1/60	01AL4181RRY
Diamond Alkali Company	The Aetna Casualty and Surety Company	2/1/60-2/1/63	01AL11063SR(Y)
Diamond Alkali Company	The Aetna Casualty and Surety Company	2/1/63-2/1/66	01AL26657SR
Diamond Alkali Company	The Aetna Casualty and Surety Company	2/1/66-2/1/69	01AL042687SR(Y)
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/69-2/1/71	01AL143300SR(Y)
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/71-2/1/72	01AL154645SRA(Y)
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/72-2/1/73	01AL158404SRA(Y)
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/73-2/1/74	01AL163368SCA(Y)
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/74-2/1/75	01AL242750SCA
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/75-2/1/76	01AL248989SCA
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/76-2/1/77	01AL256049SCA
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/77-2/1/78	01AL260827SCA
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/78-2/1/79	01AL260888SCA

INSURED	INSURER	POLICY PERIOD	POLICY NUMBER
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/79-2/1/80	01GL1436SCA
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/80-2/1/81	01GL37413SCA
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	2/1/81-7/1/82	01GL57467SCA
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	7/1/82-7/1/83	01GL248035SCA
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	7/1/83-7/1/84	01GL408968SCA
Diamond Shamrock Corporation	The Aetna Casualty and Surety Company	7/1/84-7/1/85	01GL460947SCA 01AL573426SCA

PROCEEDINGS OF THE INCORPORATION
OF
THE HARBOR LAND COMPANY.

On the 20th day of June, 1916, Harry E. Hainan, Clark H. Nye, S. J. Merrill, E. D. Heartwell and F. H. Murray, the persons named below as subscribers of articles of incorporation, desiring for themselves, their associates, successors and assigns, to become a body corporate under the laws of the State of Ohio, under the name of The Harbor Land Company, did subscribe and acknowledge according to law, articles of incorporation, as follows, to-wit:

THESE ARTICLES OF INCORPORATION
OF

THE HARBOR LAND COMPANY,

WITNESSETH, That, we, the undersigned, all of whom are citizens of the State of Ohio, desiring to form a corporation for profit, under the general corporation laws of said State, do hereby certify.

FIRST. The name of said corporation shall be THE HARBOR LAND COMPANY.

SECOND. Said corporation is to be located at Painesville in Lake County, Ohio, and its principal business there transacted.

THIRD. Said corporation is formed for the purpose of buying, selling, dealing in, controlling, owning and holding real property in its own right and in trust for others, and erecting,

EXHIBIT 43

[Handwritten signature]

constructing and repairing buildings of all kinds on real estate so owned and held by it and to do all other things connected therewith and necessary and incident thereto.

FOURTH. The capital stock of said corporation shall be Fifth Thousand Dollars, (\$50,000.00), divided into Five Hundred (500.00) shares of One Hundred Dollars (\$100.00) each.

In Witness Whereof, we have hereunto set our hands this 20th day of June, A. D. 1916.

Harry E. Hammar,
Clark H. Nye,
S. J. Merrill,
E. D. Heartwell,
F. H. Murray.

THE STATE OF OHIO, COUNTY OF LAKE, S. S.

Personally appeared before me, the undersigned, a Notary Public in and for said county, this 20th day of June, A. D. 1916, the above named Harry E. Hammar, E. D. Heartwell, F. H. Murray, C. H. Nye and S. J. Merrill, who each severally acknowledged the signing of the foregoing articles of incorporation to be his free act and deed for the uses and purposes therein mentioned.

Witness my hand and official seal on the day and year last aforesaid.

(SEAL)

Geo. C. von Bessler,
Notary Public

THE STATE OF OHIO, COUNTY OF LANE, SS.

I, F. W. Andrus, Clerk of the Court of Common Pleas, within and for the county aforesaid do hereby certify that Geo. C. von Beseler whose name is subscribed to the foregoing acknowledgment as a Notary Public, was at the date thereof a Notary Public in and for said county, duly commissioned and qualified and authorized as such to take said acknowledgment, and further that I am well acquainted with his handwriting, and believe that the signature to said acknowledgment is genuine.

In Witness Whereof, I have hereunto set my hand and affixed the seal of said Court, at Painesville, Ohio, this 20th day of June, A. D. 1916.

(SEAL) 10¢ I. R. stamp
canc.

F. W. Andrus,
Clerk.

UNITED STATES OF AMERICA,
STATE OF OHIO,
OFFICE OF THE SECRETARY OF STATE { SS.

I, C. Q. Hildebrant, Secretary of State, of the State of Ohio, do hereby certify that the foregoing is an exemplified copy carefully compared by me with the original record now in my official custody as Secretary of State, and found to be true and correct of the Articles of Incorporation of The Harbor Land Company, filed in

C. Q. Hildebrant

this office on the 22nd day of June, A. D. 1916, and recorded in Volume 191, page 517 of the Records of Incorporators.

Witness my hand and official seal at Columbus, Ohio,
this 22nd day of June, A. D. 1916.

C. Q. Hildebrandt,

Secretary of State.

(SEAL) 10¢ I. P. Stamp
canc.

Which articles, together with the certificate of acknowledgment and the certificate of the Clerk of the Court of Common Pleas, as to the official character of the officer taking such acknowledgment were, on the 22nd day of June, 1916, duly filed in the office of the Secretary of State at Columbus, Ohio, and by him recorded, and a certified copy thereof by him furnished to said subscribers.

MEETING OF INCORPORATORS.

Meeting of the incorporators of The Harbor Land Company, held this 24th day of June, 1916, at the office of Harry E. Hammar, 224 Main Street, Painesville, Ohio, to order the opening of books of subscription to the capital stock of said The Harbor Land Company, to fix the time and place for such opening and to waive notice of such opening required by law to be given, and having agreed upon such time and place, the following order for and waiver of notice of the opening of such books of subscription was made in writing by all the incorporators of said company.

Harry E. Hammar
O. H. Murray
~~D. H. Smith~~
S. J. McCall

~~D. H. Smith~~

BY-LAWS.

Article I.

Meetings. - The regular meetings of the board of directors shall be held at the office of the company on the first *Monday* of each and every month, at two o'clock, P. M.

Special meeting shall be held on the call of the president or of any director, but reasonable notice of a special meeting and the purpose of the same must be given by mail to each director.

A majority of the board shall constitute a quorum at all meetings.

Article II.

Vacancies. - In case of any vacancy in the board of directors caused by death, resignation or otherwise, such vacancy may be filled for the unexpired term by appointment by a vote of a majority of the board.

Article III.

Compensation of Officers. - The annual salary of the Secretary and Treasurer shall be fixed by contract between such officer and the stockholders, but said officer shall be subject to discharge for good cause and shall draw no salary unless the same is fixed under and by contract with the board of directors under authority granted by resolution duly passed at an annual stockholder's meeting or one called for that purpose.

Article IV.

Amendments. - These by-laws may be amended or repealed by a majority vote of the board at any regular meeting or at any special meeting called for that purpose.

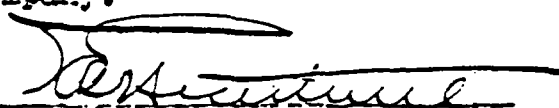
Thereupon the chairman declared the election of officers next in order, and nominations having been made and a ballot taken, Mr. Harry E. Hammar was duly elected President, Mr. E.D. Heartwell Vice-President, Mr. J. G. Armstrong, Secretary and Treasurer.


Thereupon each of the above named persons were declared to be duly elected to the respective offices above named.

There being no further business to be transacted by the board of directors at this meeting, the meeting was on motion duly seconded, adjourned.

The undersigned certify the above and foregoing to be a true, correct and full account and report of the proceedings had by the directors at the first meeting of its said Board, of The Harbor Land Company.

Attest


Secretary pro tem.


Chairman pro tem.

DIAMOND SHAMROCK CHEMICAL LAND HOLDINGS INC.

BY-LAWS

ARTICLE I

OFFICES

Section 1. The registered office shall be in the City of Wilmington, County of New Castle, State of Delaware.

Section 2. The Corporation may also have offices at such other places both within and without the State of Delaware as the board of directors may from time to time determine or the business of the Corporation may require.

ARTICLE II

MEETINGS OF STOCKHOLDERS

Section 1. All meetings of the stockholders for the election of directors or for any other purpose shall be held at such time and place, within or without the State of Delaware, as shall be stated in the notice of the meeting or in a duly executed waiver of notice thereof.

Section 2. Annual meetings of stockholders, commencing with the year 1987, shall be held on the second Monday of June if not a legal holiday, and if a legal holiday, then on the next secular day following, at 9:00 A.M., or at such other date and time as shall be designated from time to time by the board of directors and stated in the notice of the meeting, at which they shall elect by a plurality vote or by written ballot a board of

directors, and transact such other business as may properly be brought before the meeting.

Section 3. Written notice of the annual meeting stating the place, date and hour of the meeting shall be given to each stockholder entitled to vote at such meeting not less than ten nor more than sixty days before the date of the meeting.

Section 4. Special meetings of the stockholders, for any purpose or purposes, unless otherwise prescribed by statute or by the certificate of incorporation, may be called by the president and shall be called by the president or secretary at the request in writing of a majority of the board of directors, or at the request in writing of stockholders owning a majority in amount of the entire capital stock of the Corporation issued and outstanding and entitled to vote. Such request shall state the purpose or purposes of the proposed meeting.

Section 5. Written notice of a special meeting stating the place, date and hour of the meeting and the purpose or purposes for which the meeting is called, shall be given not less than ten nor more than sixty days before the date of the meeting, to each stockholder entitled to vote at such meeting.

Section 6. The holders of a majority of the stock issued and outstanding and entitled to vote thereat, present in person or represented by proxy, shall constitute a quorum at all meetings of the stockholders for the transaction of business

except as otherwise provided by statute or by the certificate of incorporation. If, however, such quorum shall not be present or represented at any meeting of the stockholders, the stockholders entitled to vote thereat, present in person or represented by proxy, shall have power to adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present or represented.

Section 7. When a quorum is present at any meeting, the vote of the holders of a majority of the stock having voting power present in person or represented by proxy shall decide any question brought before such meeting, unless the question is one upon which by express provision of the statutes or of the certificate of incorporation, a different vote is required in which case such express provision shall govern and control the decision of such question.

Section 8. Each stockholder shall at every meeting of the stockholders be entitled to one vote in person or by proxy for each share of the capital stock having voting power held by such stockholder.

Section 9. Any action required to be taken at any annual or special meeting of stockholders of the Corporation, or any action which may be taken at any annual or special meeting of such stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent in writing, setting forth the action so taken, shall be signed by the holders of

outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted.

ARTICLE III

DIRECTORS

Section 1. The board of directors shall consist of one or more members. The first board shall consist of two directors. Thereafter, within the limits above specified, the number of directors shall be determined by resolution of the board of directors or by the stockholders at the annual meeting or a special meeting. The directors shall be elected at the annual meeting of the stockholders, except as provided in Section 2 of this Article, and each director elected shall hold office until his successor is elected and qualified. Directors need not be stockholders.

Section 2. Vacancies and newly created directorships resulting from any increase in the authorized number of directors may be filled by a majority of the directors then in office, though less than a quorum, or by a sole remaining director, and the directors so chosen shall hold office until the next annual election and until their successors are duly elected and shall qualify, unless sooner displaced. If there are no directors in

office, then an election of directors may be held in the manner provided by statute.

Section 3. The business and affairs of the Corporation shall be managed by or under the direction of its board of directors which may exercise all such powers of the Corporation and do all such lawful acts and things as are not by statute or by the certificate of incorporation or by these by-laws directed or required to be exercised or done by the stockholders.

Section 4. The board of directors of the Corporation may hold meetings, both regular and special, either within or without the State of Delaware.

Section 5. Regular meetings of the board of directors may be held without notice at such time and at such place as shall from time to time be determined by the board.

Section 6. Special meetings of the board may be called by the president on one day's notice to each director, either personally or by mail or by telegram; special meetings shall be called by the president or secretary in like manner and on like notice on the written request of two directors.

Section 7. At all meetings of the board a majority of the directors then in office shall constitute a quorum for the transaction of business and the act of a majority of the directors present at any meeting at which there is a quorum shall be the act of the board of directors, except as may be otherwise

specifically provided by statute or by the certificate of incorporation. If a quorum shall not be present at any meeting of the board of directors the directors present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present.

Section 8. Unless otherwise restricted by the certificate of incorporation or these by-laws, any action required or permitted to be taken at any meeting of the board of directors or of any committee thereof may be taken without a meeting, if all members of the board or committee, as the case may be, consent thereto in writing, and the writing or writings are filed with the minutes of proceedings of the board or committee.

Section 9. Unless otherwise restricted by the certificate of incorporation or these by-laws, members of the board of directors, or any committee designated by the board of directors, may participate in a meeting of the board of directors, or any committee, by means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other, and such participation in a meeting shall constitute presence in person at the meeting.

Section 10. The board of directors may, by resolution passed by a majority of the whole board, designate one or more committees, each committee to consist of one or more of the directors of the Corporation. The board may designate one or

more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. Any such committee, to the extent provided in the resolution of the board of directors, shall have any may exercise all the powers and authority of the board of directors in the management of the business and affairs of the Corporation, and may authorize the seal of the Corporation to be affixed to all papers which may require it; but not such committee shall have the power or authority of the board of directors in the management of the business and affairs of the Corporation, and may authorize the seal of the Corporation to be affixed to all papers which may require it; but no such committee shall have the power or authority in reference to amending the certificate of incorporation, adopting an agreement of merger or consolidation, recommending to the stockholders the sale, lease or exchange of all or substantially all of the Corporation's property and assets, recommending to the stockholders a dissolution of the Corporation or a revocation of a dissolution, or amending the by-laws of the Corporation; and, unless the resolution or the certificate of incorporation expressly so provide, no such committee shall have the power or authority to declare a dividend or to authorize the issuance of stock. Such committee or committees shall have such name or names as may be determined from time to time by resolution adopted by the board of directors.

Section 11. Each committee shall keep regular minutes of its meetings and report the same to the board of directors when required.

ARTICLE IV

NOTICES

Section 1. Whenever, under the provisions of the statutes or of the certificate of incorporation or of these by-laws, notice is required to be given to any director or stockholder, it shall not be construed to mean personal notice, but such notice may be given in writing, by mail, addressed to such director or stockholder, at his address as it appears on the records of the Corporation, with postage thereon prepaid, and such notice shall be deemed to be given at the time when the same shall be deposited in the United States mail. Notice to directors may also be given by telegram or telephone.

Section 2. Whenever any notice is required to be given under the provisions of the statutes or of the certificate of incorporation or of these by-laws, a waiver thereof in writing, signed by the person or persons entitled to said notice, whether before or after the time stated therein, shall be deemed equivalent thereto.

ARTICLE V

OFFICERS

Section 1. The officers of the Corporation shall be chosen by the board of directors and shall be a president and a secretary. The board of directors may also choose a treasurer, one or more vice-presidents, a controller and one or more assistant secretaries and assistant treasurers. Any number of offices may be held by the same person, unless the certificate of incorporation or these by-laws otherwise provide.

Section 2. The salaries of all officers and agents of the Corporation shall be fixed by the board of directors.

Section 3. The officers of the Corporation shall hold office until their successors are chosen and qualified. Any officer elected or appointed by the board of directors may be removed at any time by the affirmative vote of a majority of the board of directors. Any vacancy occurring in any office of the Corporation shall be filled by the board of directors.

Section 4. The officers of the Corporation shall have such authority and shall perform such duties as are customarily incident to their respective offices, or as may be specified from time to time by the Directors regardless of whether such authority and duties are customarily incident to such office.

ARTICLE VI
CERTIFICATES OF STOCK

Section 1. Every holder of stock in the Corporation shall be entitled to have a certificate, signed by, or in the name of the Corporation by the president or a vice-president and the secretary or an assistant secretary of the Corporation, certifying the number of shares owned by him in the Corporation.

Section 2. Upon surrender to the Corporation or the transfer agent of the Corporation of a certificate for shares duly endorsed or accompanied by proper evidence of succession, assignation or authority to transfer, it shall be the duty of the Corporation to issue a new certificate to the person entitled thereto, cancel the old certificate and record the transaction upon its books.

ARTICLE VII
INDEMNIFICATION OF DIRECTORS AND OFFICERS

Each person who is or was a director, officer, employee or agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise (including the heirs, executors, administrators or estate of such person) shall be indemnified by the Corporation to the full extent permitted or authorized by the General Corporation Law of the State of Delaware. The Corporation may,

but shall not be obligated to, maintain insurance, at its expense, for its benefit in respect of such indemnification and that of any such person whether or not the Corporation would otherwise have the power to indemnify such person.

ARTICLE VIII GENERAL PROVISIONS

Section 1. Dividends upon the capital stock of the Corporation, subject to the provisions of the certificate of incorporation, if any, may be declared by the board of directors at any regular or special meeting, pursuant to law. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the certificate of incorporation.

Section 2. Before payment of any dividend, there may be set aside out of any funds of the Corporation available for dividends such sum or sums as the directors from time to time, in their absolute discretion, think proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the Corporation, or for such other purposes as the directors shall think conducive to the interest of the Corporation, and the directors may modify or abolish any such reserve in the manner in which it was created.

Section 3. All checks or demands for money and notes of the Corporation shall be signed by such officer or officers or such

other person or persons as the board of directors may from time to time designate.

Section 4. The fiscal year of the Corporation shall be fixed by resolution of the board of directors.

Section 5. The board of directors may adopt a corporate seal and use the same by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

ARTICLE IX

AMENDMENTS

These by-laws may be altered, amended or repealed or new by-laws may be adopted by the stockholders or by the board of directors.

INC/Inc.2

1307

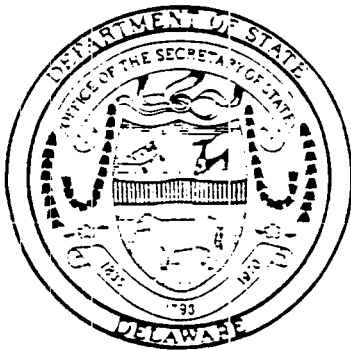


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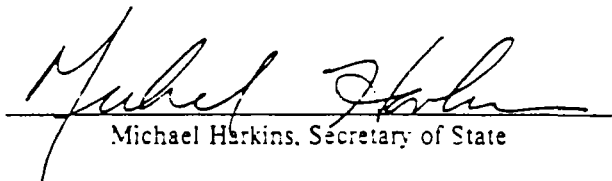
Office of Secretary of State

I, MICHAEL HARKINS, SECRETARY OF STATE OF THE STATE OF DELAWARE DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF INCORPORATION OF DIAMOND SHAMROCK PROCESS CHEMICALS INC. FILED IN THIS OFFICE ON THE TWENTY-FIRST DAY OF MARCH, A.D. 1986, AT 10 O'CLOCK A.M.

| | | | | | | | |



736080019


Michael Harkins, Secretary of State

AUTHENTICATION: 10768892

DATE: 03/21/1986

FILED

MAR 21 1966

Handwritten signature
108
SECRETARY OF STATE

CERTIFICATE OF INCORPORATION

OF

DIAMOND SHAMROCK PROCESS CHEMICALS INC.

The undersigned, for the purpose of incorporating and organizing a corporation under the General Corporation Law of the State of Delaware (the "GCL"), does hereby certify as follows:

1. The name of the corporation is Diamond Shamrock Process Chemicals Inc. (the "Corporation").

2. The address of the Corporation's registered office in the State of Delaware is the Corporation Trust Center, 1209 Orange Street, City of Wilmington, County of New Castle. The name of the Corporation's registered agent at such address is The Corporation Trust Company.

3. The purpose of the Corporation is to engage in any lawful act or activity for which a corporation may be organized under the GCL.

4. The total number of shares of capital stock which the Corporation shall have authority to issue is 1,000 shares of Common Stock, \$1.00 par value.

5. The name and mailing address of the incorporator is Grace Alcala', 351 Phelps Court, P. O. Box 152300, Irving, Texas 75015-2300.


6. The names and mailing addresses of the persons who are to serve as Directors of the Corporation until the first annual meeting of stockholders or until their successors are duly elected and qualified are as follows:

<u>Name</u>	<u>Mailing Address</u>
J. W. McConnell	351 Phelps Court P. O. Box 152300 Irving, Texas 75015-2300
M. J. Dumeny	351 Phelps Court P. O. Box 152300 Irving, Texas 75015-2300

7. The Board of Directors of the Corporation shall have power to adopt, alter, amend or repeal the By-Laws of the Corporation.

8. The Corporation reserves the right at any time and from time to time to alter, amend, change, or repeal any provision contained in this Certificate of Incorporation, and other provisions authorized by the laws of the GCL at the time in force may be added or inserted, in the manner now or hereafter prescribed by law; and all rights, preferences and privileges of whatsoever nature conferred upon stockholders, directors or any other persons whomsoever by and pursuant to this Certificate of Incorporation in its present form or as hereafter amended are granted subject to the rights hereby reserved.

The undersigned, being the incorporator hereinabove named, does hereby execute this Certificate of Incorporation this 20th day of March, 1986.


Grace Alcala

RECEIVED FOR RECORD

MAR 25 1986

JO J. DUGAN, Jr., Recorder

030ga³

11 013

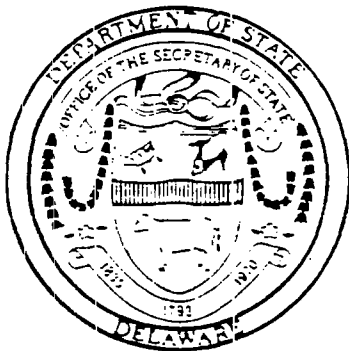


BOOK 339 PAGE 503

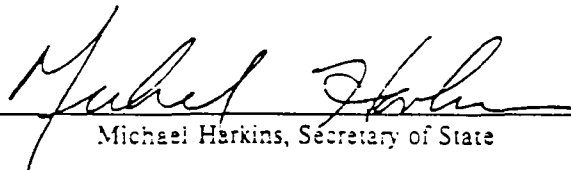
Office of Secretary of State

I, MICHAEL HARKINS, SECRETARY OF STATE OF THE STATE OF DELAWARE DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT BEFORE PAYMENT FOR STOCK OF DIAMOND SHAMROCK PROCESS CHEMICALS, INC. FILED IN THIS OFFICE ON THE ELEVENTH DAY OF JULY, A.D. 1986, AT 10 O'CLOCK A.M.

I I I I I I I I I



736192063


Michael Harkins, Secretary of State

AUTHENTICATION: 10883560

DATE: 07/14/1986

CERTIFICATE OF AMENDMENT

OF

CERTIFICATE OF INCORPORATION

OF

DIAMOND SHAMROCK PROCESS CHEMICALS INC.

FILE 339-504

DIAMOND SHAMROCK PROCESS CHEMICALS INC., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware,

DOES HEREBY CERTIFY THAT:

1. The name of the corporation is DIAMOND SHAMROCK PROCESS CHEMICALS INC. (the "Corporation").
2. An original Certificate of Incorporation was filed in the office of the Secretary of State of Delaware on March 21, 1986 and recorded in the office of the Recorder of Deeds of New Castle County of March 21, 1986.
3. The Certificate of Incorporation of the Corporation is hereby amended by deleting in its entirety the present section one of the Certificate of Incorporation of the Corporation and replacing it with the following:

FIRST: The name of the corporation (hereinafter called the Corporation) is Diamond Shamrock Chemical Land Holdings Inc.

4. The Corporation has not received any payment for any capital stock, and the foregoing amendment has been duly adopted by the unanimous actions of the Board of Directors of the Corporation in accordance with section 241 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, said DIAMOND SHAMROCK PROCESS CHEMICALS INC. has caused this certificate to be signed by J. W. McConnell, its Vice President, and attested to by MARCEL J. DUMENY, its Secretary, this 24th day of June, 1986.

By

J. W. McConnell
Vice President

ATTEST:

By

Marcel J. Dumeny
Secretary

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LEO J. DUGAN, Jr., Recorder

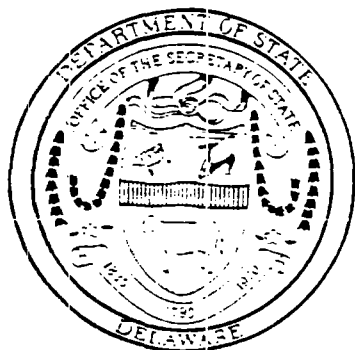
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Office of Secretary of State

I, MICHAEL HARKINS, SECRETARY OF STATE OF THE STATE OF DELAWARE DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF DIAMOND SHAMROCK PROCESS CHEMICALS, INC. FILED IN THIS OFFICE ON THE FOURTH DAY OF DECEMBER, A.D. 1987, AT 10 O'CLOCK A.M.

1 1 1 1 1 1 1 1



Michael Harkins
 Michael Harkins, Secretary of State

AUTHENTICATION:

DATE:

11493591

12/08/1987

737338032

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION

DIAMOND SHAMROCK CHEMICAL LAND HOLDINGS INC., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware,
DOES HEREBY CERTIFY:

FIRST: That the Board of Directors of said corporation, by unanimous written consent of its members, filed with the minutes of the board, adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

RESOLVED, that the Board of Directors hereby declares it advisable that the Corporation change its name, and in furtherance thereof that Article 1 of the Certificate of Incorporation be amended in its entirety to read as follows:


1. The name of the corporation is Chemical Land Holdings, Inc. (the "Corporation").

SECOND: That in lieu of a meeting and vote of the sole stockholder, the stockholder has given written consent to said amendment in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.


THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Sections 242 and 228 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, said DIAMOND SHAMROCK CHEMICAL LAND HOLDINGS INC. has caused this certificate to be signed by D. C. Mielke, its Vice President, and attested by D. H. Van Horn, its Assistant Secretary, this 21st day of October, 1967.

DIAMOND SHAMROCK CHEMICAL LAND
HOLDINGS INC.

By 
D. C. Mielke, Vice President

ATTEST:

By 
D. H. Van Horn
Assistant Secretary

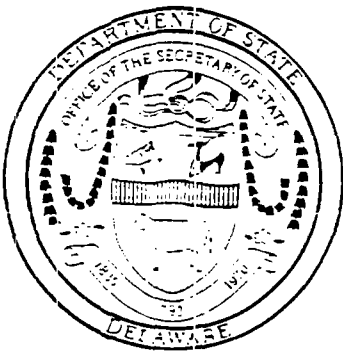
State of Delaware



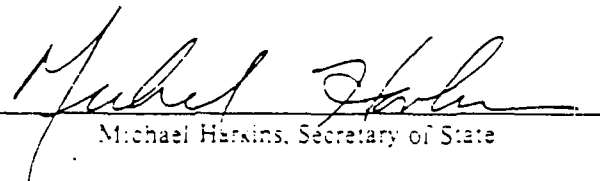
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Office of Secretary of State

I, MICHAEL HARKINS, SECRETARY OF STATE OF THE STATE OF DELAWARE,
DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE
CERTIFICATE OF AMENDMENT OF DIAMOND SHAMROCK CHEMICAL LAND HOLDINGS
INC. FILED IN THIS OFFICE ON THE FOURTH DAY OF DECEMBER, A.D. 1987,
AT 10 O'CLOCK A.M.



137339032


Michael Harkins, Secretary of State

AUTHENTICATION: 1493592

DATE: 12/08/1987

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John L. Feltman
Secretary

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION

DIAMOND SHAMROCK CHEMICAL LAND HOLDINGS INC., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware,
DOES HEREBY CERTIFY:

FIRST: That the Board of Directors of said corporation, by unanimous written consent of its members, filed with the minutes of the board, adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

RESOLVED, that the Board of Directors hereby declares it advisable that the Corporation change its name, and in furtherance thereof that Article 1 of the Certificate of Incorporation be amended in its entirety to read as follows:

1. The name of the corporation is Chemical Land Holdings, Inc. (the "Corporation").

SECOND: That in lieu of a meeting and vote of the sole stockholder, the stockholder has given written consent to said amendment in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Sections 242 and 228 of the General Corporation Law of the State of Delaware.

() DOUGGE 556

IN WITNESS WHEREOF, said DIAMOND SHAMROCK CHEMICAL LAND HOLDINGS INC. has caused this certificate to be signed by D. C. Mielke, its Vice President, and attested by D. H. Van Horn, its Assistant Secretary, this 21st day of October, 1987.

DIAMOND SHAMROCK CHEMICAL LAND
HOLDINGS INC.

By 
D. C. Mielke, Vice President

ATTEST:

By 
D. H. Van Horn
Assistant Secretary

7321/SUEWTCGI

RECEIVED FOR READING

DECEMBER 1987

RECEIVED FOR READING

State of Delaware



Office of Secretary of State

I, GLENN C. KENTON, SECRETARY OF STATE OF THE STATE OF
DELAWARE DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT
COPY OF THE CERTIFICATE OF INCORPORATION OF NEW DIAMOND
CORPORATION FILED IN THIS OFFICE ON THE NINETEENTH DAY OF JULY,
A.D. 1983, AT 10 O'CLOCK A.M.

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Glenn C. Kenton, Secretary of State

AUTHENTICATION: 10019323

DATE: 07/20/1983

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CERTIFICATE OF INCORPORATION
OF
NEW DIAMOND CORPORATION

The undersigned, for the purpose of organizing a corporation under the General Corporation Law of the State of Delaware, does hereby certify as follows:

FIRST. The name of the Corporation (the "Corporation") is New Diamond Corporation.

SECOND. The registered office of the Corporation in the State of Delaware is located at 100 West Tenth Street, in the City of Wilmington, County of New Castle. The name of the Corporation's registered agent at such address is The Corporation Trust Company.

THIRD. The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of the State of Delaware.

FOURTH. The Corporation is authorized to issue two classes of capital stock, designated Common Stock and Preferred Stock. The amount of total authorized capital stock of the Corporation is 400,000,000 shares, divided into 300,000,000 shares of Common Stock, \$1.00 par value, and 100,000,000 shares of Preferred Stock, \$1.00 par value.

The Preferred Stock may be issued in one or more series. The Board of Directors is hereby authorized to issue the shares of Preferred Stock in such series and to fix from time to time before issuance the number of shares to be included in any series and the designation, relative powers, preferences and rights and qualifications, limitations or restrictions of all shares of such series. The authority of the Board of Directors with respect to each series shall include, without limiting the generality of the foregoing, the determination of any or all of the following:

(a) the number of shares of any series and the designation to distinguish the shares of such series from the shares of all other series;

(b) the voting powers, if any, and whether such voting powers are full or limited, in any such series;

(c) the redemption provisions, if any, applicable to such series, including the redemption price or prices to be paid;

(d) whether dividends, if any, shall be cumulative or noncumulative, the dividend rate of such series, and the dates and preferences of dividends on such series;

(e) the rights of such series upon the voluntary or involuntary dissolution of, or upon any distribution of the assets of, the Corporation;

(f) the provisions, if any, pursuant to which the shares of such series are convertible into, or exchangeable for, shares of any other class or classes or of any other series of the same or any other class or classes of stock, or any other security, of the Corporation or any other corporation, and price or prices or the rates of exchange applicable thereto;

(g) the right, if any, to subscribe for or to purchase any securities of the Corporation or any other corporation;

(h) the provisions, if any, of a sinking fund applicable to such series; and

(i) any other relative, participating, optional or other special powers, preferences, rights, qualifications, limitations or restrictions thereof;

all as shall be determined from time to time by the Board of Directors and shall be stated in said resolution or resolutions providing for the issue of such Preferred Stock (a "Preferred Stock Designation").

Each holder of Common Stock of the Corporation entitled to vote shall have one vote for each share thereof held.

Except as may be provided by the Board of Directors in a Preferred Stock Designation, the Common Stock shall have the exclusive right to vote for the election of Directors and for all other purposes, and holders of Preferred Stock shall not be entitled to receive notice of any meeting of stockholders at which they are not entitled to vote or consent.

The Corporation shall be entitled to treat the person in whose name any share of its stock is registered as the owner thereof, for all purposes, and shall not be bound to recognize any equitable or other claim to, or interest in, such share on the part of any other person, whether or not the Corporation shall have notice thereof, except as expressly provided by applicable laws.

FIFTH. In furtherance of, and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized and empowered:

(a) To make and alter the By-Laws of the Corporation; provided, however, that the By-Laws made by the Board of Directors under the powers hereby conferred may be altered or repealed by the Board of Directors or by the stockholders having voting powers with respect thereto.

(b) From time to time to determine whether and to what extent, and at what times and places, and under what conditions and regulations, the accounts and books of the Corporation or any of them, shall be open to inspection of stockholders; and no stockholder shall have any right to inspect any account, book or document of the Corporation, except as conferred by applicable law and subject to the rights, if any, of the holders of any series of Preferred Stock as provided in the Preferred Stock Designation for such series.

The Corporation may in its By-Laws confer powers upon its Board of Directors in addition to the foregoing and in addition to the powers and authorities expressly conferred upon the Board of Directors by applicable law.

SIXTH. The stockholders and Board of Directors of the Corporation shall have power to hold their meetings and to have one or more offices of the Corporation within or without the State of Delaware, and to keep the books of the Corporation outside of the State of Delaware at such place or places as may from time to time be designated by the Board of Directors.

SEVENTH. Subject to the rights of the holders of Preferred Stock or any other class of capital stock of the Corporation (other than Common Stock) or any series of any of the foregoing which is outstanding, any action required or permitted to be taken by the stockholders of the Corporation must be effected at an annual or special meeting of stockholders of the Corporation and may not be effected by any consent in writing of such stockholders.

EIGHTH. The Corporation reserves the right to amend, alter, change or repeal any provision contained in the Certificate of Incorporation, including in a Preferred Stock Designation, in the manner now or hereafter prescribed by applicable law and this Certificate of Incorporation, including any applicable Preferred Stock Designation, and all rights conferred upon stockholders herein are created subject to this reservation.

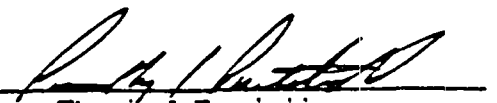
NINTH. The name and mailing address of the incorporator is Timothy J. Frerthold, 3300 Diamond Shamrock Tower, 717 North Harwood Street, Dallas, Texas 75201.

IN WITNESS WHEREOF, the undersigned, being the incorporator hereinabove named, does hereby execute this Certificate of Incorporation this 4th day of July, 1983.

RECEIVED FOR RECORD

JUL - 7 - 1983

LEO J. DUGAN, Jr., Recorder


Timothy J. Frerthold

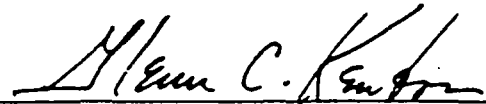
State of Delaware



Office of Secretary of State

I, GLENN C. KENTON, SECRETARY OF STATE OF THE STATE OF DELAWARE DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF NEW DIAMOND CORPORATION FILED IN THIS OFFICE ON THE FIRST DAY OF SEPTEMBER, A.D. 1983, AT 8:31 O'CLOCK A.M.

1 1 1 1 1 1 1 1 1 1


Glenn C. Kenton, Secretary of State

832430283

AUTHENTICATION:

10056829

DATE: 09/01/1983

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
NEW DIAMOND CORPORATION

* * * * *

New Diamond Corporation, a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware, DOES HEREBY CERTIFY:

FIRST: That the Board of Directors of said corporation, at a meeting duly held, adopted a resolution proposing and declaring advisable the amendment of the Certificate of Incorporation of said corporation to change the First Article thereof so that, as amended said Article shall be read as follows:

"FIRST. The name of the corporation is Diamond Shamrock Corporation".


SECOND: That thereafter, at a special meeting of stockholders held on August 2, 1983, the sole stockholder of said corporation approved said amendment.

THIRD: That the aforesaid amendment was duly adopted in accordance with the provisions of Section 242 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, said New Diamond Corporation has
caused this certificate to be signed by J. F. Kelley, its Vice
President and attested by T. J. Fretthold, its Secretary,
this 31st day of August, 1983.

New Diamond Corporation

By


Vice President

ATTEST:

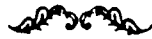
By


Secretary

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State
of
DELAWARE



Office of SECRETARY OF STATE

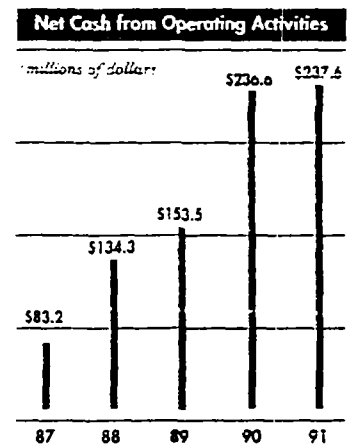
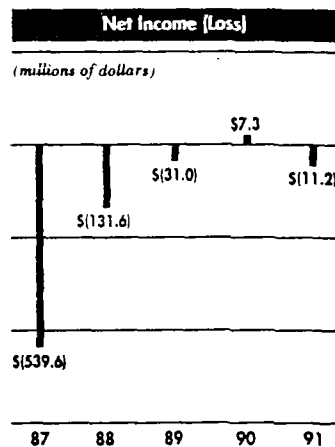
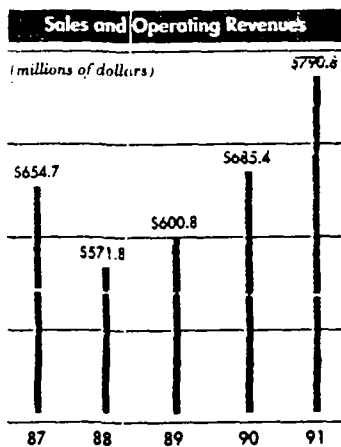
I, Michael Harkins, Secretary of State of the State of Delaware,
do hereby certify that the "DIAMOND SHAMROCK CORPORATION", filed a Certificate of
Amendment, changing its corporate title to "MAXUS ENERGY CORPORATION", on the twenty-eighth
day of April, A.D. 1987, at 8:30 o'clock A.M.

MAXUS ENERGY CORPORATION

1991 ANNUAL REPORT

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1991 Highlights

Revenues grew 15% to record level of \$791 million

International revenues exceeded domestic revenues for the first time

Cash from operations grew for fifth year in a row despite depressed prices

Production reached record levels despite market constraints

Replaced 151% of equivalent barrels of oil produced at \$4.58 per barrel finding and development costs

Purchased 92 million equivalent BCF of gas in the Texas Panhandle at approximately \$.67 per MCF

Sold \$72 million of non-strategic United States assets realizing a gain of \$8 million

Management's Discussion and Analysis of Financial Condition and Results of Operations

Operationally, 1991 was a good year for Maxus, characterized by numerous accomplishments on which the Company will build in the coming years. Of overall significance is the Company's reserve replacement record. Approximately 151% of production was replaced at \$4.58 per barrel. In Indonesia, a twenty-year extension on the contract in Southeast Sumatra was negotiated and a letter of intent for a Northwest Java gas project was signed. Also, the Company exceeded its goal and added seven new international contract areas. Domestically, major sales and major acquisitions of properties in the United States were completed which further consolidated the operations in the Gulf of Mexico and the Texas Panhandle areas. In addition, construction began on a new gas processing plant in the Texas Panhandle which will capitalize on the value of the reserves in that area.

Maxus, as well as all other companies in the industry, experienced depressed natural gas prices in the United States which had a material effect on operating cash income and also caused the Company to curtail some gas production. Another disappointment was the production volume curtailment in Southeast Sumatra due to marketing constraints.

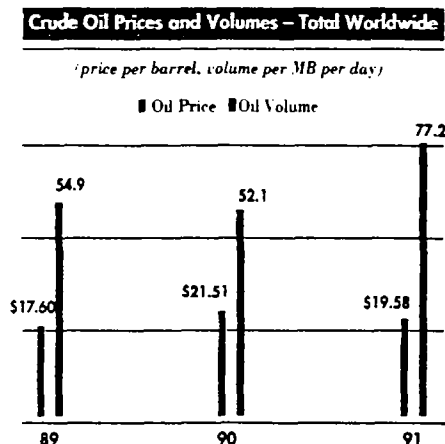
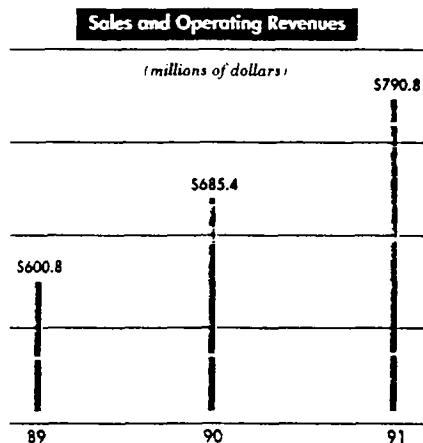
Overall, management feels the long-term programs put in place during 1991 will set the stage for future growth.

Results of Operations

Maxus achieved record high sales revenues in 1991, which represented significant volume increases internationally, partly offset by domestic declines. However, the positive volume gains were negatively impacted by depressed oil and gas prices, higher international operating costs and increased taxes. The increase in taxes was due to the significant change in the revenue mix between international and

domestic sales. The combination of these factors resulted in the Company recording a net loss of \$11.2 million for 1991 compared to net income of \$7.3 million a year ago.

The profit Maxus reported in 1990 compared to a net loss of \$31.0 million in 1989. The 1989 results included gains on the sales of assets in the amount of \$76.9 million; excluding these gains, the improvement in 1990 over 1989 was \$115.2 million. The increased net income was attributable to improved prices, lower depreciation, depletion and amortization and reduced interest and debt expense.



Sales and Operating Revenues

Sales and operating revenues continued a three-year upward trend, growing 15% in 1991 to a record \$790.8 million. For the first time in that trend, volumes rather than prices were responsible for the growth. The volume improvement was achieved internationally with new production from Indonesia. The total worldwide positive volume variance of \$176.8 million more than offset weaker pricing (\$71.4 million negative price variance) compared to last year. The 14% improvement in 1990 sales over 1989 was due to increased prices (\$110.4 million positive price variance) partially offset by reduced volumes (\$25.8 million negative volume variance).

The Company's net crude oil production, of which 87% was from its Indonesian operations, was 77.2 thousand barrels

("MB") per day in 1991, a 48% increase over 1990. This increase reflects the full year of operation of the Intan and Widuri fields in Southeast Sumatra. The Intan field commenced production mid-1989 and the Widuri field was brought on-line in December of 1990. Revenues also benefited from increased volumes in Northwest Java. The positive volume variance of \$197.0 million from the Indonesian operations was offset by the effects of lower oil prices in 1991, a \$42.6 million negative variance. While gross production from the Intan and Widuri fields hit a peak rate of 196.0 MB

per day in July of 1991, production from the fields was curtailed to an average of 157.0 MB per day for the year due to marketing constraints. The local government oil company could not market all of its crude oil at prices they would accept. The 1990 crude oil production was 52.1 MB per day as compared to the 1989 level of 54.9 MB per day. Maxus' share of the total Indonesian production was 41.9 MB per day in 1990, down from 44.0 MB per day in 1989. This volume decrease resulted from the effect of higher crude prices on the cost recovery portion of net entitlements. (The price increase equated to an 8.0 MB per day decrease in volumes.)

During 1991, United States natural gas sales declined 27 million cubic feet ("MMCF") per day from the 1990 level. The decrease occurred primarily offshore and was attributed to natural declines and the Company's election to curtail a portion of its production because of the low gas prices and balancing. The relatively flat gas sales volumes from 1989 to 1990 were a net result of production declines in 1990 offset by new volumes from offshore properties.

The depressed natural gas market negatively impacted domestic prices during 1991, with early 1992 showing signs of continued pressure. However, in spite of the price collapse, Maxus was able to utilize marketing strategies to sell gas throughout 1991 at a premium over published industry averages. The Company's average realized price in 1991 exceeded the weighted average spot price, in the regions where the Company operates, by \$.25 per thousand cubic feet ("MCF").

Natural gas liquid sales in the United States for 1991 were 16.7 MB per day as compared to 16.2 MB per day in 1990 and 17.9 MB per day in 1989. The 1991 results include one month of increased volumes (1.0 MB per day) from a second train which came on-line at the Roger Mills gas plant. Average prices received for natural gas liquids fluctuated from \$12.11 per barrel in 1991 to \$13.56 per barrel in 1990 and \$9.27 per barrel in 1989.

In addition to gathering and processing a substantial part of its own natural gas, Maxus also purchases, gathers and processes other natural gas, primarily in the Texas Panhandle and western Oklahoma, for resale. Included in the total sales volumes were 61 MMCF per day of purchased natural gas, relatively unchanged over the three-year period. The average daily sales of natural gas liquids, extracted from purchased natural gas, included in the previously discussed volumes, were 7.9 MB per day in 1991, also relatively constant over the three-year period.

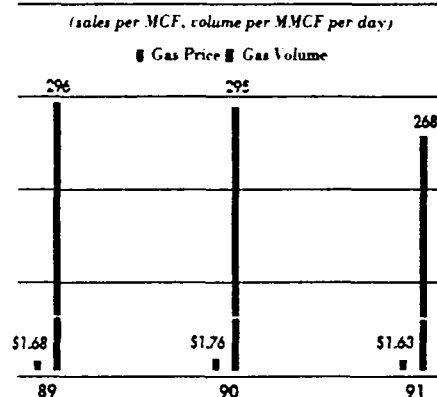
This side of the business will continue to be emphasized and future growth is anticipated upon completion of the new gas plant in the area.

Costs and Expenses

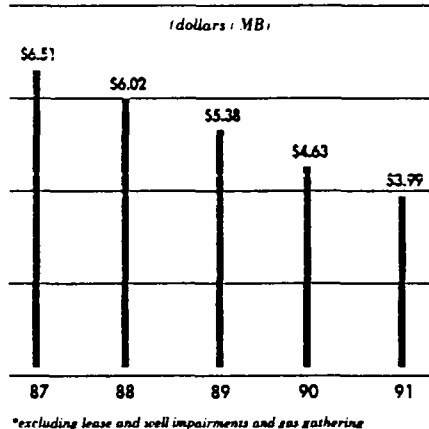
Total costs and expenses were \$684.1 million in 1991, an increase of \$52.8 million over 1990. The variance can be traced to the two most significant components of costs and expenses which were purchases and operating expenses and depreciation, depletion and amortization ("DD&A"). Both components were influenced by increases in international activity, partially offset by reductions domestically. The 1990 total costs and expenses declined \$18.0 million from 1989 with increases in operating costs offset by reduced DD&A, largely due to lower rates, and lower interest expenses related to the lower average debt balances in 1990 as compared to 1989.

Purchases and operating expenses increased \$31.2 million in 1991 over 1990, of which \$21.5 million was due to higher Indonesian production and operating expenses primarily related to the additional production from the Widuri field. Offsetting this increase, in part, were slightly lower United States costs, mainly a \$4.4 million decrease in third-party gas purchases reflecting the lower gas prices. In addition, the Company recorded a \$6.0 million charge against earnings in 1991 to increase its environmental reserve due to higher estimates of

Natural Gas Prices and Volumes - Total U.S.



Depreciation, Depletion & Amortization Rates*



future expenditures. Purchases and operating expenses were \$243.2 million in 1990. The 10% increase over 1989 was primarily the result of the new platforms which came on production in the Southeast Sumatra area of Indonesia during 1990.

Although depreciation, depletion and amortization increased 7% to \$203.6 million in 1991 (driven by the higher international volumes) as compared to 1990. Maxus continued to experience decreased DD&A rates. On a total per barrel of oil equivalent basis, the DD&A rate has dropped from \$6.51 per barrel produced in 1987 to \$3.99 per barrel in 1991. This favorable trend has been largely due to the continued success in finding and developing low-cost reserves. The Company's last five-year average finding and development cost has been under \$4.00 per barrel.

Other Revenues, Net

In addition to the sales and costs related to operations, Maxus recognized gains from the sale of certain properties as part of its ongoing strategy to focus efforts in key geographic areas. Included in the other revenues, net for 1991 was a \$7.5 million gain from the sale of substantially all of the Company's Rocky Mountain and Permian Basin properties. The 1989 results contain gains on the sale of assets in the amount of \$76.9 million, including the sale of the Company's Canadian subsidiary, the sale of a 10% interest in a production sharing contract in the Northwest Java area of Indonesia and the sale of certain non-strategic United States oil and gas properties. These transactions are further discussed in the Notes to Consolidated Financial Statements.

Income Taxes

The Company's provision for income taxes in 1991 and 1990 represents almost entirely Indonesian taxes. The 1989 provision represents foreign taxes and United States alternative minimum tax, par-

tially offset by tax benefits attributed to prior year operating losses.

The provision for income tax increased \$68.1 million in 1991, compared to 1990, while worldwide operating profit increased \$49.6 million over the same period. This disproportionate increase in tax was caused by a significant increase in income from Indonesia, subject to a 56% rate of tax, offset by decreased income in the United States with no corresponding tax benefit. Additionally, the Company was unable to report a tax benefit from its new exploratory efforts in various other foreign tax jurisdictions.

The income tax expense in 1990, as compared to 1989, was largely the result of increased taxable revenue in Southeast Sumatra which more than offset the reduction in tax caused by the sale of the partial interest in the production sharing contract in Northwest Java.

Liquidity and Capital Resources Operating Activities

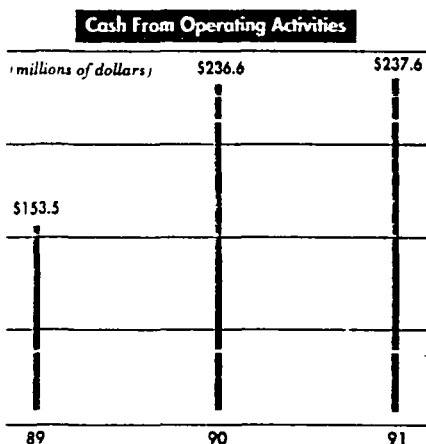
Net cash provided by operating activities totaled \$237.6 million in 1991, a slight increase from 1990. Net cash provided by operating activities was positively impacted by working capital requirements in 1991. The Company received payments during 1991 for delivery of certain Indonesian crude oil over the next twelve-month period. At December 31, 1991, \$21.7 million of such crude oil, recorded

as deferred revenue, remained to be delivered, thereby increasing net cash provided by operating activities.

During 1990, net cash provided by operating activities was \$236.6 million, an \$83.1 million increase over 1989. This significant increase was largely attributable to a general improvement in prices and lower cash interest costs.

Investing Activities

Expenditures for properties and equipment, including dry hole costs, were \$272.3 million in 1991. Although



Expenditures for Properties and Equipment*				
(millions of dollars)		1989	1990	1991
United States				
Property Acquisition	\$ 22.9	\$ 25.5	96.3	
Exploration	20.6	33.2	20.0	
Development	33.9	42.4	30.7	
Other	14.9	7.2	20.9	
		92.3	108.3	167.9
International				
Indonesian Exploration	22.6	15.4	8.8	
Indonesian Development	40.8	144.0	82.3	
Other	10.1	5.2	13.3	
		73.5	164.6	104.4
Total Expenditures		\$165.8	\$272.9	\$272.3
*including dry hole costs				

relatively unchanged from 1990 total spending levels. the 1991 spending focused on United States property acquisition while the 1990 spending was targeted towards Indonesian development.

During 1991, Maxus realigned its United States property base and increased its property concentration in Texas, Oklahoma and Louisiana through property acquisitions totaling \$96.3 million. Partially funding the purchases was \$69.1 million of proceeds from the sale of the Rocky Mountain and Permian Basin properties.

The 1990 expenditures for property and equipment included Indonesian development spending of \$154.5 million, as compared to \$89.9 million in 1991 and \$63.5 million in 1989. The increase in 1990 was the result of the aggressive drilling and development program and the completion in late 1990 of the permanent processing facility in the Southeast Sumatra area of Indonesia, which allowed production from the Widuri field to come on-line in December.

Cash proceeds from the sales of assets amounted to \$316.8 million in 1989, representing \$141.6 million from the sale of the Company's Canadian subsidiary and approximately \$100.0 million from the sale of a 10% interest in a production sharing contract in the Northwest Java area of Indonesia. The remaining balance was primarily due to the sales of non-strategic United States oil and gas properties.

Financing Activities

In 1990, the Company issued 9,000,000 shares of Common Stock and received net proceeds of \$89.8 million, of which \$69.0 million was used to repurchase and restructure portions of the \$9.75 Preferred Stock. In 1991, the Company received \$17.0 million from the issuance of additional shares of Common Stock under the Dividend Reinvestment and Stock Purchase Plan. Both stock transactions are explained in greater detail in the Notes to Consolidated Financial Statements.

As of December 31, 1991, the Company had issued \$117.0 million in medium-term notes with maturities ranging from five to eleven years and interest rates ranging from 10.19% to 11.08%. These notes were issued pursuant to a shelf registration statement, which became effective in January 1991, for a public offering up to \$150.0 million in medium-term notes. To date, the proceeds of such notes have been used to retire long-term debt and for general corporate purposes. Specifically, in October 1991, the Company redeemed its outstanding 10 5/8% notes due in 1994. The redemption price was

100% of the outstanding principal of \$61.3 million plus accrued interest. The Company intends to use the remaining proceeds from the shelf registration for general corporate purposes, which may, depending on market conditions, include the repayment of certain existing indebtedness.

The Company's long-term target for the ratio of debt to total market capitalization (the ratio of debt to the market value of debt plus common and preferred equity) is 30%. As with any company, the selection of a long-term debt to market capitalization target reflects a trade-off between financial flexibility and the tax advantages of debt. At the end of 1991, Maxus had \$166.1 million of net operating loss carryforwards and \$21.3 million of general business credit carryforwards. To the extent these carryforwards provide tax shelter for Maxus, they diminish the tax benefit of debt. The 30% target for Maxus' debt to total market capitalization ratio would provide Maxus with an efficient capital structure in terms of both taxation and financial flexibility.

As of December 31, 1991, Maxus' debt to total market capitalization ratio was 41%, as compared to 37% and 33% at year-end 1990 and 1989. The increase in the ratio over the period primarily reflects the effects of the general downward trend in exploration and production company stock prices related to trends in natural gas prices and price expectations.

Liquidity

The Company's current ratio (the relationship between current assets and current liabilities) for 1991 declined to 0.9 from 1.0 at year-end 1990. This change resulted from a decrease in receivables due to lower prices and a decrease in accounts payable caused by lower levels of year-end spending somewhat offset by the payments received for future deliveries of crude oil.

Accounting Standards

Postretirement Benefits

The Financial Accounting Standards Board has issued Statement of Financial Accounting Standards No. 106, "Employers' Accounting for Postretirement Benefits Other Than Pensions", which requires the accrual, during the years the employee renders the necessary service, of the expected cost of providing postretirement benefits other than pensions (most notably, postretirement medical benefits) to the employee and the employees' beneficiaries and covered dependents. This standard, which must be adopted no later than 1993, may be adopted prospectively or by recording

the cumulative effect of the accounting change in the year of adoption.

Maxus has not decided how or when it will adopt the new accounting standard. A number of factors are still being evaluated including the effect of possible future changes to the benefit plans and the impact of changes in the assumed medical trend rates. At this time, Maxus estimates the obligation upon adoption will likely be in the range from \$30.0 million to \$50.0 million. Annual expense will likely be in the range from one to two times current benefits paid. The valuation of the postretirement obligation at the date of adoption and the estimated expense are extremely sensitive to the terms of the benefit plans and the medical trend rates.

Income Taxes

In February 1992, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 109 ("SFAS 109"), "Accounting for Income Taxes," which will supersede the Company's current approach to accounting and reporting for income taxes under Statement of Financial Accounting Standards No. 96 ("SFAS 96"). While SFAS 109 continues to require an asset and liability approach to account for income taxes, it allows recognition of a deferred tax asset for the future tax benefit of certain temporary differences and tax carryforwards. Recognition is subject to a valuation allowance if it is more likely than not some portion or all of a deferred tax asset will not be realized. The standard is required to be adopted by 1993. The change may be reported prospectively or through a cumulative effect adjustment in the year of adoption.

The Company has significant operating loss carryforwards, general business and minimum tax credit carryforwards and foreign exploratory costs for which no tax benefit has been recognized as a result of the restriction on reporting deferred tax assets imposed by SFAS 96. The amount, if any, of deferred taxes which may be reported upon application of SFAS 109 has not been determined by management. Management has not decided when it will adopt SFAS 109 or if it will report the adoption prospectively or through a cumulative adjustment.

Environmental Matters

Like other companies, Maxus' operations are subject to various laws relating to the handling and disposition of hazardous substances which require the cleanup of deposits and spills. Compliance with the laws and pro-

tection of the environment worldwide is of the highest priority to Maxus' management. In 1991, the Company spent \$6.4 million in environmental related expenditures in the oil and gas operations. Expenditures in 1992 are expected to be \$18.6 million with the increase mainly attributable to the new gas plant under construction and to the initial development phase of Block 16 in Ecuador.

In addition, the Company has retained responsibility for certain environmental liabilities of its chemicals business ("Chemicals") sold to Occidental Petroleum Corporation in 1986 and certain other disposed of businesses. In the opinion of the Company, environmental remediation has been substantially completed at all former plant sites where remediation is required, except for two New Jersey sites, Newark and Kearny.

The Company will be responsible for remediation at the former agricultural chemical plant in Newark under a consent decree entered in November 1990 with the United States Environmental Protection Agency and the New Jersey Department of Environmental Protection (the "DEP").

The Company will continue to implement interim remedial actions and to perform remedial investigations and feasibility studies, and if necessary, the Company will then implement additional remedial actions under an Administrative Consent Order issued by the DEP in April 1990 covering sites in Kearny and Secaucus, New Jersey, where chromite ore residue from the Kearny plant was utilized, as well as the plant site. The Company has provided financial assurance for performance under the order in the form of, and limited to, a \$20.0 million letter of credit and a \$31.5 million capital fund which is being established incrementally through April 1, 1993.

The Company also has responsibility for Chemicals' share of the remediation cost for a number of other non-plant sites, where wastes from plant operations by Chemicals were allegedly disposed of or have come to be located, including several commercial waste disposal sites.

The Company's total expenditures for environmental compliance for disposed of businesses, including Chemicals, were \$21.4 million in 1991, substantially all of which were recovered from Diamond Shamrock, Inc. ("DSI") under a cost-sharing agreement. Those expenditures are projected to be at approximately the same level in 1992, net to Maxus of approximately \$12.4 million after recovery from DSI under the cost-sharing agreement.

Reserves have been established for environmental liabilities where they are material and probable and can be reasonably estimated. At December 31, 1991, the reserve balance was \$27.5 million which included a 1991 charge to earnings in the amount of \$6.0 million. The addition to the reserve in 1991 was necessary because, as additional information became available, the Company was able to better estimate the cost of environmental liabilities at certain locations. Total future costs for environmental activities cannot be reasonably estimated due to considerable uncertainties in these matters; however, it is likely that future charges against earnings may be required.

Future Outlook

For Maxus, 1991 was a very active year with much of the activity involving planning and positioning for the future. Therefore, many accomplishments of 1991 are not yet reflected in the financial statements, but are expected to have a significant future impact.

In the fourth quarter of 1991, the Company began construction of its new Maxus Sunray Gas Processing Plant. The plant, located in the Texas Panhandle near Dumas, will have 160 MMCF per day capacity and is expected to be on-line in January 1993. The plant will allow better control and management of gas processing and provide opportunities for increasing the profitability of the gas processing operations. The plant design will allow for the recovery of a complete range of liquid products as well as helium. The profitability of the gas plant has been enhanced by the success the Company has had in its efforts to realign assets to concentrate gas reserves in the Texas Panhandle, thus making Maxus the second largest producer in the area.

Internationally, Maxus has signed a letter of understanding with Petroecuador, the state oil company of Ecuador, to assume operatorship of Block 16 and increase the Company's ownership interest from 15% to 35%. Estimated gross reserves are approximately 200 million barrels and the Company believes additional exploration potential exists on the block. As operator, Maxus will be in a position to increase the upside potential during all facets of development. Maxus is committed to acting responsibly in carrying out the consortium's plan to develop these reserves in an environmentally sensitive manner.

Late in 1991, the operator of the Northwest Java block in Indonesia signed a letter of intent with Pertamina for the development of a major gas project. Initial natural gas production is expected to

be up to 260 MMCF per day, delivered at a price of \$2.45 per million BTUs. Plans call for first production by early 1994.

Maxus' total program spending budget, whether capitalized or charged to earnings, is projected to be approximately \$300.0 million in 1992, compared to 1991 spending of \$321.3 million. The overall decrease reflects lower North American property acquisitions and a significantly reduced level of domestic exploration and development spending. The program's emphasis focuses on the international operations, which represents approximately 70% of the total 1992 budget. The initial stages of the two major international projects, the development of the gas reserves in Northwest Java and the assumption of operatorship and additional interest in the development of the Ecuador reserves, account for much of the international increase. Domestically, the budget includes costs associated with the completion of the Texas Panhandle gas plant. These major projects, combined with a significant inventory of exploration opportunities and ongoing Indonesian development, certainly point to a very active period for the Company in 1992 and beyond.

Flexibility in planning continues to be key in this uncertain environment of volatile pricing. Management continually updates and reviews spending plans in response to price outlook and other factors. There is a certain amount of flexibility in the program spending budget and the Company will continue to adjust those plans in response to the economics of various projects as well as changes in the environment in which it operates.

Identifiable projects which meet the Company's investment criteria exceed the projected cash flow from operations in 1992, given management's current oil and gas price expectations. Therefore, Maxus will continue to be selective in the projects it pursues in order to avoid the dilution of shareholder value as a result of seeking additional equity capitalization. To the extent that Maxus seeks additional market capitalization, it will attempt to do so in the target ratios of 70% equity and 30% debt. In addition to considering additional equity capitalization, Maxus is evaluating its options for asset sales, equity carve-outs and additional debt offerings.

Maxus Energy Corporation
Consolidated Statement of Operations (dollars in millions, except per share)

<i>Year Ended December 31,</i>	<i>1991</i>	<i>1990</i>	<i>1989</i>
Revenues			
Sales and operating revenues	\$796.8	\$685.4	\$600.8
Other revenues, net	12.2	15.2	62.9
	<u>803.0</u>	<u>700.6</u>	<u>663.7</u>
Costs and Expenses			
Purchases and operating expenses	274.4	243.2	221.9
Exploration, including exploratory dry holes	66.5	65.4	49.8
Depreciation, depletion and amortization	203.6	190.5	234.0
General and administrative expenses	34.1	32.5	32.8
Taxes other than income taxes	17.1	19.1	17.0
Interest and debt expenses	88.4	80.6	93.8
	<u>684.1</u>	<u>631.3</u>	<u>649.3</u>
Income Before Income Taxes	118.9	69.3	14.4
Income Taxes	130.1	62.0	45.4
Net Income (Loss)	(11.2)	7.3	(31.0)
Dividend requirement on Preferred Stock	(41.7)	(44.0)	(46.6)
Loss Applicable to Common Shares	<u>\$ (52.9)</u>	<u>\$ (36.7)</u>	<u>\$ (77.6)</u>
Net Loss Per Common Share	<u>\$ (.52)</u>	<u>\$ (.38)</u>	<u>\$ (.86)</u>
Average Common Shares Outstanding	100,806,289	96,075,695	90,292,104

See Notes to Consolidated Financial Statements.

Maxus Energy Corporation
Consolidated Balance Sheet (dollars in millions)

December 31.	1991	1990
Assets		
Current Assets		
Cash and cash equivalents	\$ 25.0	\$ 29.5
Short-term investments	20.0	16.1
Receivables, less doubtful receivables	146.5	163.0
Inventories	21.6	26.9
Prepays and other current assets	12.8	13.4
Total Current Assets	225.9	248.9
Properties and Equipment, less accumulated depreciation and depletion	1,075.2	1,077.1
Investments and Long-Term Receivables	75.4	71.8
Intangible Assets, less accumulated amortization	39.6	40.8
Deferred Charges	35.4	31.6
	\$1,451.5	\$1,470.2
Liabilities and Stockholders' Deficit		
Current Liabilities		
Long-term debt	\$.2	\$.2
Accounts payable	92.2	113.3
Accrued liabilities	77.1	81.0
Taxes payable	30.3	37.2
Deferred income taxes	27.8	28.7
Deferred revenue	21.7	
Total Current Liabilities	249.3	260.4
Long-Term Debt	788.7	766.3
Deferred Income Taxes	142.9	145.6
Other Liabilities and Deferred Credits	76.5	71.0
Redeemable Preferred Stock, \$1.00 par value		
Authorized and issued shares-2,500,000	250.0	250.0
Stockholders' Deficit		
Preferred Stock, \$1.00 par value		
Authorized shares-4,565,017 Issued shares-4,334,858	4.3	4.3
Common Stock, \$1.00 par value		
Authorized shares-300,000,000 Issued shares-102,778,910 and 100,223,348	102.8	100.2
Paid-in capital	857.5	881.3
Accumulated deficit	(1,018.5)	(1,007.3)
Common Treasury Stock, at cost-122,809 and 96,109 shares	(2.0)	(1.6)
Total Stockholders' Deficit	(55.9)	(23.1)
	\$1,451.5	\$1,470.2

See "Commitments and Contingencies".

See Notes to Consolidated Financial Statements. The Company uses the successful efforts method to account for its oil and gas producing activities.

Maxus Energy Corporation
Consolidated Statement of Cash Flows (dollars in millions)

Year Ended December 31,	1991	1990	1989
Cash Flows From Operating Activities:			
Net income (loss)	\$ (11.2)	\$ 7.3	\$ (31.0)
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation, depletion and amortization	203.6	190.5	234.0
Dry hole costs	17.5	21.7	16.0
Income taxes	(7.6)	7.3	(7.5)
Interest expense on zero-coupon convertible notes	8.4	7.7	6.2
Net gain on sales of assets	(9.0)		(76.9)
Other	16.7	3.9	20.2
Changes in components of working capital:			
Receivables	23.3	.9	(42.8)
Inventories	3.8	(3.3)	1.9
Prepays and other current assets	1.1	(.5)	(6.6)
Accounts payable	(12.4)	(20.4)	41.5
Accrued liabilities	(15.4)	15.7	(12.6)
Taxes payable	(2.9)	5.8	11.1
Deferred revenue	21.7		
Net cash provided by operating activities	237.6	236.6	153.5
Cash Flows From Investing Activities:			
Expenditures for properties and equipment – including dry hole costs	(272.3)	(272.9)	(165.8)
Expenditures for investments	(17.4)	(14.0)	(28.6)
Proceeds from sales of assets	76.6	10.9	316.8
Proceeds from sale/maturity of short-term investments	27.4	38.5	66.8
Purchases of short-term investments	(31.3)	(35.1)	(62.7)
Other	(14.0)	(24.0)	(20.5)
Net cash provided by (used in) investing activities	(231.0)	(296.6)	106.0
Cash Flows From Financing Activities:			
Proceeds from issuance of long-term debt	210.2	33.5	189.1
Repayment of long-term debt	(196.6)	(22.7)	(318.9)
Proceeds from issuance of Common Stock	17.0	89.8	
Repurchase and restructuring of \$9.75 Preferred Stock		(69.0)	
Dividends paid	(41.7)	(44.0)	(46.6)
Net cash used in financing activities	(11.1)	(12.4)	(176.4)
Net increase (decrease) in cash and cash equivalents	(4.5)	(72.4)	83.1
Cash and cash equivalents at beginning of year	29.5	101.9	18.8
Cash and cash equivalents at end of year	\$ 25.0	\$ 29.5	\$ 101.9

See Notes to Consolidated Financial Statements.

Maxus Energy Corporation
Notes to Consolidated Financial Statements

Data is as of December 31 of each year or for the year then ended and dollar amounts in tables are in millions, except per share.

1 Significant Accounting Policies

The Consolidated Financial Statements have been prepared in conformity with generally accepted accounting principles, the most significant of which are described below.

Consolidation and Equity Accounting

The Consolidated Financial Statements include the accounts of Maxus Energy Corporation and all domestic and foreign subsidiaries (the "Company"). The Company uses the equity method to account for its less than 50% owned investments in affiliates and joint ventures ("Associated Companies") and the proportionate consolidation method to account for its investments in Diamond Shamrock Offshore Partners Limited Partnership. Under the equity method, the Company recognizes its proportionate share of the net income or loss of Associated Companies currently, rather than when realized through dividends or disposal. All significant intercompany accounts and transactions have been eliminated.

Statement of Cash Flows

Investments with maturities of three months or less at the time of acquisition are considered cash equivalents for purposes of the accompanying Consolidated Statement of Cash Flows. The cash and cash equivalents balances at December 31, 1991 and 1990 include cash equivalents of \$22.9 million and \$20.7 million, respectively. Short-term investments are stated at cost which approximates market value.

Net cash provided by operating activities reflects cash payments for interest and income taxes as follows:

	1991	1990	1989
Interest, net of amounts			
capitalized	\$ 78.0	\$67.8	\$88.9
Income taxes	143.1	52.3	49.7

Inventory Valuation

Inventories, consisting primarily of oil and gas tubular goods and supplies, are valued at the lower of cost or market, cost being determined primarily by the weighted average cost method.

Properties and Equipment

Properties and equipment are carried at cost. Major additions are capitalized; expenditures for repairs and maintenance are charged against earnings.

The Company uses the successful efforts method to account for costs incurred in the acquisition, exploration, development and production of oil and gas reserves. Under this method, all geological and geophysical costs are expensed; all development costs, whether or not successful, are capitalized as costs of proved properties; exploratory drilling costs are initially capitalized, but if the effort is determined to be unsuccessful, the costs are then charged against earnings; depletion is computed based on an aggregation of properties with common geologic structural features or stratigraphic conditions, such as reservoirs or fields; and for unproved properties, both onshore and offshore, a valuation allowance (included as an element of depletion) is provided by a charge against earnings to reflect the impairment of unproven acreage.

Interest

The Company capitalizes the interest cost associated with major property additions and mineral development projects while in progress, such amounts being amortized over the useful lives of the related assets.

Depreciation, Depletion and Amortization

Depreciation and depletion related to the costs of all development drilling, successful exploratory drilling and related production equipment is calculated using the unit of production method based upon estimated proved recoverable reserves. Other properties and equipment are depreciated generally on the straight-line method over their estimated useful lives. Intangible assets are amortized on the straight-line method over their legal or estimated useful lives, not to exceed 40 years.

Pensions

The Company has a number of trustee noncontributory pension plans covering substantially all full-time employees. The Company's funding policy is to con-

tribute amounts to the plans sufficient to meet the minimum funding requirements under governmental regulations, plus such additional amounts as management may determine to be appropriate. The benefits related to the plans are based on years of service and compensation earned during years of employment. The Company also has a noncontributory supplemental retirement plan for executive officers.

Environmental Expenditures

Environmental expenditures that relate to ongoing business activities are expensed or capitalized as appropriate. Expenditures that relate to an existing condition caused by past operations and do not contribute to current or future revenues are expensed. Liabilities are recorded when environmental assessments and/or remediation are probable and such costs to the Company can be reasonably estimated.

Income Taxes

The Company accounts for income taxes in accordance with Statement of Financial Accounting Standards No. 96 ("SFAS 96"), "Accounting for Income Taxes". Income taxes are provided during the year in which transactions affect the financial statements, regardless of when they are recognized for tax purposes. The deferred tax liability is determined based on the difference between the financial reporting and tax bases of assets and liabilities as measured by the enacted tax rates which will be in effect when these differences reverse. Deferred tax expense is the result of changes in the liability for deferred taxes. Investment tax credits are accounted for using the flow-through method.

Earnings Per Share

Primary earnings per share are based on the weighted average number of shares of common stock and common stock equivalents outstanding.

Financial Instruments with Off-Balance Sheet Risk and Concentrations of Credit Risk

At December 31, 1991, the Company had one interest rate swap outstanding with the contract ending October 31, 1992. The notional principal amount is \$50.0 million with the Company obligated on a fixed rate and the counter-party on a floating rate. The differential to be paid or received is accrued as the rate of interest changes and is recognized over the

life of the contract.

The Company's financial instruments that are exposed to concentrations of credit risk consist primarily of cash equivalents, short-term investments and trade receivables.

The Company's cash equivalents and short-term investments represent high quality securities placed with various high investment grade institutions. This investment practice limits the Company's exposure to concentrations of credit risk.

The trade receivables are dispersed among a broad domestic and international customer base, therefore, concentrations of credit risk are limited. The Company carefully assesses the financial strength of its customers. Letters of credit are the primary security obtained to support lines of credit.

2 Master Limited Partnership

Diamond Shamrock Offshore Partners Limited Partnership ("Offshore Partners") is a master limited partnership which explores for and produces natural gas and crude oil on federal offshore leases in the Gulf of Mexico off Texas and Louisiana. Maxus Offshore Exploration Company, a wholly owned subsidiary of the Company, and the Company have a combined 1% general partner's interest in Offshore Partners and are the managing general partner and special general partner, respectively. The Company had an aggregate interest in Offshore Partners of approximately 87.1% and 85.8% at December 31, 1991 and 1990, respectively.

3 Asset Acquisitions and Divestitures

In May 1991, the Company purchased various oil and gas properties located in the Texas and Oklahoma Panhandles for \$52.4 million. In July 1991, Offshore Partners acquired interests in producing oil and gas leases offshore Louisiana for \$29.0 million funded in part by the Company's \$21.0 million acquisition of units of limited partnership interest in Offshore Partners.

Effective July 1, 1991, the Company sold oil and gas interests in non-strategic United States properties for \$69.1 million, realizing a gain on the sale of \$7.5 million.

Effective January 1, 1989, the Company sold the stock of its Canadian subsidiary which represented all of the Company's Canadian operations for \$141.6 million, realizing a gain on the sale of \$27.7

million. This transaction eliminated the cumulative translation adjustment balance of \$9.1 million.

In October 1989, the Company sold the stock of a wholly owned foreign subsidiary which owned a 19% interest in a production sharing contract in the Northwest Java area of Indonesia for approximately \$100.0 million, realizing a gain on the sale of \$34.8 million. As a result of the sale, the Company's interest in this production sharing contract decreased from 34.27% to 24.27%.

During 1989, the Company sold other assets, consisting primarily of non-strategic oil and gas properties, for approximately \$75.2 million. The Company recorded a net gain on such sales of \$14.4 million, net of losses recognized on assets held for sale.

4 Geographic Data

The Company is engaged primarily in the exploration for and the production and sale of crude oil and natural gas.

Sales, operating profit and identifiable assets by geographic area were as follows:

	<i>Sales and Operating Revenues</i>		
	1991	1990	1989
United States	\$303.4	\$352.4	\$313.5
Indonesia	487.4	333.0	287.3
	\$790.8	\$685.4	\$600.8

	<i>Operating Profit</i>		
	1991	1990	1989
United States	\$ 42.0	\$ 77.5	\$ 74.8
Indonesia	242.7	128.8	108.6
Other Foreign	(22.4)	(22.0)	(17.5)
	262.3	184.3	165.9
Equity earnings	1.0	.8	2.2
General corporate expenses	(56.0)	(35.2)	(59.9)
Interest and debt expenses	(88.4)	(80.6)	(93.8)
Income before income taxes	\$118.9	\$ 69.3	\$ 14.4

	<i>Identifiable Assets</i>		
	1991	1990	1989
United States	\$ 546.3	\$ 568.0	\$ 587.0
Indonesia	565.7	574.7	493.8
Other Foreign	26.5	15.7	12.6
	1,138.5	1,158.4	1,093.4
Corporate assets	251.2	257.7	336.9
Investments in Associated Companies	61.8	54.1	47.5
Total assets	\$1,451.5	\$1,470.2	\$1,477.8

Net foreign assets were \$409.1 million at December 31, 1991, \$374.2 million at December 31, 1990 and \$321.4 million at December 31, 1989.

Results of foreign operations, after applicable local taxes, amounted to net income of \$112.4 million in 1991, \$56.7 million in 1990 and \$61.6 million in 1989. Such amounts include earnings of subsidiaries and Associated Companies included in net income (loss).

The Company's foreign petroleum exploration, development and production activities are subject to political and economic uncertainties, expropriation of property and cancellation or modification of contract rights, foreign exchange restrictions and other risks arising out of foreign governmental sovereignty over the areas in which the Company's operations are conducted.

Sales to three customers in 1991, 1990 and 1989 each represented 10% or more of consolidated sales. Specifically, sales to Diamond Shamrock, Inc. amounted to \$81.6 million, \$92.5 million and \$76.4 million in 1991, 1990 and 1989, respectively; sales to Mitsubishi Corporation amounted to \$118.1 million, \$83.6 million and \$69.1 million in 1991, 1990 and 1989, respectively; and sales to the Indonesian Government amounted to \$99.9 million in 1991, \$77.3 million in 1990 and \$124.2 million in 1989.

5 Taxes

The principal types of differences between assets and liabilities for financial statement and tax return purposes are depreciation, depletion and amortization methods, contingencies and differences in the recorded amounts and tax bases of assets and liabilities acquired in business combinations.

Income before income taxes was comprised of income (loss) from:

	1991	1990	1989
United States	\$(101.4)	\$(37.5)	\$(76.7)
Foreign	220.3	106.8	91.1
	\$ 118.9	\$ 69.3	\$ 14.4

The Company's provision for income taxes was comprised of the following:

	1991	1990	1989
Current			
Federal	\$ (1.4)	\$ (7.4)	\$ (3.4)
Foreign	134.1	53.5	51.0
State and local	1.0	.6	
	133.7	46.7	47.6
Deferred			
Federal	(2.0)	(4.0)	6.0
Foreign	.5	19.3	(8.2)
Enacted foreign tax rate change	(2.1)		
	(3.6)	15.3	(2.2)
	\$130.1	\$ 62.0	\$ 45.4

The principal reasons for the difference between the statutory federal income tax rate and the Company's provision for income taxes were:

	1991	1990	1989
Tax expense at statutory federal rate	\$ 40.4	\$ 23.6	\$ 4.9
Increase (reduction) resulting from:			
Taxes on foreign income	86.4	47.7	49.5
Excess statutory depletion	(1.0)	(1.0)	(1.1)
Alternative minimum tax	.4		9.0
Utilization of operating loss carryforward	6.4	1.2	(17.1)
Items not related to current year earnings	(4.0)	(11.2)	.7
Other, net	1.5	1.7	(.5)
	\$130.1	\$ 62.0	\$45.4

The provision (benefit) for deferred income taxes was comprised of the tax effects of temporary differences as follows:

	1991	1990	1989
Intangible drilling costs	\$.7	\$ 20.0	\$ 1.4
Accelerated depreciation	(3.9)	(19.7)	(4.9)
Development wells and related items	.4	4.3	.4
Contingencies and asset write-offs	(.6)	9.1	.8
Other, net	(.2)	1.6	.1
	\$ (3.6)	\$ 15.3	\$ (2.2)

At December 31, 1991, the Company had \$21.3 million of unused general business credits for federal income tax and financial statement purposes that expire between 1995 and 2006. At December 31, 1991, the Company had \$166.1 million and \$148.1 million of net operating loss carryforwards for federal income tax and financial statement purposes, respectively, that expire in 2002, 2003 and 2005. Additionally, at December 31, 1991, the Company had \$4.7 million of unused minimum tax credit for federal income tax and financial statement purposes that can be carried forward indefinitely.

At December 31, 1991, there were accumulated undistributed earnings after applicable local taxes of foreign subsidiaries of \$27.9 million for which no provision was necessary for foreign withholding or other income taxes because that amount had been reinvested in properties and equipment and working capital.

Taxes other than income taxes were comprised of the following:

	1991	1990	1989
Gross production	\$ 8.6	\$10.1	\$ 8.9
Real and personal property	7.3	7.2	6.9
Other	1.2	1.8	1.2
	\$17.1	\$19.1	\$17.0

In February 1992, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 109 ("SFAS 109"), "Accounting for Income Taxes," which will supersede the Company's current approach to accounting and reporting for income taxes under SFAS 96. While SFAS 109 continues to require an asset and liability approach to account for income taxes, it allows recognition of a deferred tax asset for the future tax benefit of certain temporary differences and tax carryforwards. Recognition is subject to a valuation allowance if it is more likely than not some portion or all of a deferred tax asset will not be realized. The standard is required to be adopted by 1993. The change may be reported prospectively or through a cumulative effect adjustment in the year of adoption.

The Company has significant operating loss carryforwards, general business and minimum tax credit carryforwards and foreign exploratory costs for which no tax benefit has been recognized as a result of the restriction on reporting deferred tax assets imposed

by SFAS 96. The amount, if any, of deferred taxes which may be reported upon application of SFAS 109 has not been determined by management. Management has not decided when it will adopt SFAS 109 or if it will report the adoption prospectively or through a cumulative adjustment.

6 Postretirement Benefits

Pensions

The net periodic pension cost includes the following components:

	1991	1990	1989
Service cost for benefits earned during the year	\$ 2.2	\$ 2.1	\$ 1.7
Interest cost on projected benefit obligation	9.8	9.6	9.0
Actual return on plan assets	(15.7)	(4.5)	(20.7)
Net amortization and deferrals	6.1	(6.1)	11.6
	\$ 2.4	\$ 1.1	\$ 1.6

Plan assets are primarily invested in short-term investments, stocks and bonds. The principal assumptions used to estimate the benefit obligations of the plans on the measurement date, October 1, were as follows:

	1991	1990
Discount rate	9.0%	9.5%
Expected long-term rate of return on assets	9.5%	9.5%
Rate of increase in compensation levels	6.0%	5.0%

Actuarial present value of:

Vested benefit obligation	
Accumulated benefit obligation	
Projected benefit obligation	
Plan assets at fair value	
Plan assets greater (less) than projected benefit obligation	
Unrecognized net loss (gain)	
Unrecognized net transition obligation (asset)	
Unrecognized prior service cost	
Prepaid (accrued) pension cost	

Accumulated Benefits Exceed Assets		Assets Exceed Accumulated Benefits	
1991	1990	1991	1990
\$ 4.7	\$ 5.1	\$ 91.0	\$ 87.7
\$ 7.7	\$ 7.9	\$ 95.6	\$ 94.2
\$ 8.3	\$ 8.1	\$ 99.9	\$ 97.0
4.7	5.6	104.0	102.5
(3.6)	(2.5)	4.1	5.5
(1.4)	(2.7)	15.4	16.4
2.1	2.3	(8.6)	(9.4)
(1.1)	(1.2)	(.6)	(.9)
\$ (4.0)	\$ (4.1)	\$ 10.3	\$ 11.6

In addition to the defined benefit plans, the Company has a new defined contribution plan which covers Indonesian nationals. Employee contributions of 2% of each covered employee's compensation are matched 6% by the Company. During 1991, contributions to the plan totaled \$2.9 million, of which \$2.5 million was for past services. Funds were transferred to an Indonesian insurance company.

Other Postretirement Benefits

The Company provides certain medical and life insurance benefits to eligible retired employees. The cost

recognized as a charge against earnings for the retirees' medical benefit claims and life insurance premiums paid amounted to \$3.7 million in 1991, \$4.1 million in 1990 and \$3.7 million in 1989.

The Financial Accounting Standards Board has issued Statement of Financial Accounting Standards No. 106, "Employers' Accounting for Postretirement Benefits Other Than Pensions", which requires the accrual, during the years the employee renders the necessary service, of the expected cost of providing postretirement benefits other than pensions (most notably, postretirement medical benefits) to the

employee and the employees' beneficiaries and covered dependents. This standard, which must be adopted no later than 1993, may be adopted prospectively or by recording the cumulative effect of the accounting change in the year of adoption.

The Company has not decided how or when it will adopt the new accounting standard. A number of factors are still being evaluated including the effect of possible future changes to the benefit plans and the impact of changes in the assumed medical trend rates. At this time, the Company estimates the obligation upon adoption of the new standard will likely be in the range from \$30.0 million to \$50.0 million. Annual expense will likely be in the range from one to two times current benefits paid. The valuation of the postretirement obligation at the date of adoption and the estimated expense are extremely sensitive to the terms of the benefit plans and the medical trend rates.

7 Receivables

	1991	1990
Notes and accounts receivable	\$148.0	\$164.6
Less - Allowance for doubtful receivables	1.5	1.6
	<u>\$146.5</u>	<u>\$163.0</u>

8 Properties and Equipment

	1991	1990
Proved properties	\$2,495.1	\$2,440.2
Unproved properties	70.6	89.7
Other	143.1	126.7
Total Oil and Gas	<u>2,708.8</u>	<u>2,656.6</u>
Corporate	183.4	181.3
	<u>2,892.2</u>	<u>2,837.9</u>
Less - Accumulated depreciation and depletion	<u>1,817.0</u>	<u>1,760.8</u>
	<u>\$1,075.2</u>	<u>\$1,077.1</u>

The charge against earnings for depreciation and depletion was \$202.3 million in 1991, \$188.8 million in 1990 and \$232.4 million in 1989. The charge against earnings for maintenance and repairs was \$23.2 million in 1991, \$20.0 million in 1990 and \$16.2 million in 1989.

9 Investments and Long-Term Receivables

	1991	1990
Investments and advances, at equity		
Union-Magma-Thermal Tax Partnership ("UMT") (25%)	\$61.8	\$54.1
Investments, at cost, and long-term receivables	<u>13.6</u>	<u>17.7</u>
	<u>\$75.4</u>	<u>\$71.8</u>

The Company has indemnified Union Oil Company of California, its co-venturer in the Magma-Thermal Power Project ("MTPP"), a California joint venture, and in UMT, relative to a note payable by MTPP which is a non-recourse loan secured only by the Company's interest in the Geysers, the site of production of electric power from geothermal steam in northern California. At December 31, 1991, the note payable had an outstanding principal balance of \$60.0 million.

The following schedule presents certain summarized financial information of UMT:

	1991	1990	1989
Summarized Balance Sheet:			
Current Assets	\$ 12.4	\$ 9.9	\$ 12.1
Non-Current Assets	446.3	463.5	480.8
Current Liabilities	22.7	19.8	18.5
Non-Current Liabilities	47.5	60.0	72.5

Summarized Statement

of Income:

Sales	\$ 68.1	\$ 77.7	\$ 86.7
Gross Profit	23.6	27.6	39.8
Net Income	<u>23.6</u>	<u>27.6</u>	<u>39.8</u>

Equity earnings are principally from geothermal operations and were \$1.0 million in 1991, \$.8 million in 1990 and \$2.2 million in 1989.

10 Intangible Assets

At December 31, 1991 and 1990, intangibles, primarily the excess of cost over fair value of net assets acquired, were \$50.0 million and \$52.0 million, respectively. Accumulated amortization at December 31, 1991 and 1990 was \$10.4 million and \$11.2 million, respectively. The charge against earnings for amortization of intangible assets was \$1.3 million in 1991, \$1.7 million in 1990 and \$1.6 million in 1989.

11 Accrued Liabilities

	1991	1990
Accrued interest payable	\$19.4	\$16.5
Joint interest billings for		
Indonesian operations	14.5	20.5
Accrued environmental expenditures	12.4	
Accrued compensation, benefits and withholdings	11.1	12.3
Other	19.7	31.7
	<u>\$77.1</u>	<u>\$81.0</u>

12 Long-Term Debt and Credit Arrangements

	1991	1990
Senior Indebtedness		
Sinking Fund Debentures		
8 7/8% due 1994-1997	\$ 10.8	\$ 10.8
11 1/4% due 1994-2013	134.7	134.7
11 1/2% due 1996-2015	108.9	108.8
8 1/2% due 1997-2008	97.7	97.7
Notes		
10 5/8% due 1993		84.4
10 1/2% due 1995	95.9	95.9
Bank credit agreement	25.0	20.0
Medium-term notes	209.5	114.5
Bank and other loans	1.7	3.4
Total Senior Indebtedness	<u>684.2</u>	<u>670.2</u>
Subordinated Indebtedness		
Zero-coupon convertible notes	104.7	96.3
	<u>788.9</u>	<u>766.5</u>
Less - Current portion	.2	.2
	<u>\$788.7</u>	<u>\$766.3</u>

The aggregate maturities of long-term debt outstanding at December 31, 1991 for the next five years will be as follows: 1992—\$5.4 million; 1993—\$64.6 million; 1994—\$4.7 million; 1995—\$113.0 million; 1996—\$52.6 million.

Effective July 31, 1990, the Company entered into a \$150.0 million revolving credit agreement which replaced the Company's prior \$110.0 million amended and restated credit agreement. The new bank credit agreement terminates on June 1, 1993 and contains provisions which, among other things, restrict the payment of dividends on Common Stock and require an annual commitment fee of .50% on any unused portion of the commitment. The agreement continues prior restrictions on the incurrence of additional debt

and liens, sales of property, payment of quarterly preferred stock dividends, credit extensions and investments and limitations on mergers and issuances of securities. At December 31, 1991, there were borrowings of \$25.0 million at 6.13% interest per annum and letters of credit of \$57.7 million outstanding under the revolving credit agreement. The Company also has letters of credit totaling \$12.3 million with various other banks.

On February 16, 1989, the Company issued subordinated zero-coupon convertible notes due February 16, 2004 having an aggregate principal amount at maturity of \$287.5 million. The rate of accretion on the principal is 8.5% per annum. Each \$1,000 note is convertible, at the option of the holder, at any time until maturity unless previously redeemed or otherwise purchased, into 35.639 shares of Common Stock.

At December 31, 1991, the Company had \$92.5 million of medium-term notes outstanding, issued pursuant to a shelf registration statement filed in 1988, with maturities from 1992 to 1998 and annual interest rates from 10% to 10.8%. The 1992 maturities of \$5.2 million are expected to be repaid through new long-term borrowings. In addition, the Company issued during 1991, \$117.0 million of medium-term notes pursuant to a shelf registration statement, which became effective in January 1991, for a public offering of up to \$150.0 million. These notes have maturities from five to eleven years and annual interest rates from 10.19% to 11.08%. The proceeds of such notes have been used to retire long-term debt and for general corporate purposes.

Total interest and debt expenses incurred were as follows:

	1991	1990	1989
Interest and debt expenses	\$88.4	\$80.6	\$93.8
Capitalized interest	2.0	5.3	.1
	<u>\$90.4</u>	<u>\$85.9</u>	<u>\$93.9</u>

13 Preferred Stock

The Company has the authority to issue 100,000,000 shares of Preferred Stock, \$1.00 par value. The rights and preferences of shares of authorized but unissued Preferred Stock are to be established by the Company's Board of Directors at the time of issuance.

\$9.75 Cumulative Convertible Preferred Stock

In June 1990, the Company used \$69.0 million of the net proceeds from a Common Stock offering (see "Common Stock") to fund its obligations under an agreement, dated April 12, 1990 between the Company and the holder of the 3,000,000 shares of \$9.75 Cumulative Convertible Preferred Stock (the "\$9.75 Preferred Stock"). Pursuant to the agreement, the Company repurchased 500,000 shares of the \$9.75 Preferred Stock. In addition, the holder waived the right to convert 750,000 of the remaining 2,500,000 shares of \$9.75 Preferred Stock and will receive an additional cash payment of \$.25 per share per quarter (subject to increase to \$.50 per share per quarter in certain circumstances) on the 750,000 nonconvertible shares (the "Conversion Waiver Shares"). Further, certain covenants relating to the \$9.75 Preferred Stock were waived or amended. In October 1990, the number of authorized shares of \$9.75 Preferred Stock was decreased to 2,500,000.

The \$9.75 Preferred Stock has a liquidation value of \$104.3335 per share for the 12-month period commencing February 1, 1992 (\$260.8 million in the aggregate), reducing progressively as of February 1 of each year to \$100 per share at February 1, 1996, in each case plus accrued dividends. Each outstanding share of the \$9.75 Preferred Stock is convertible (other than the Conversion Waiver Shares) into 8.26 shares of the Company's Common Stock, is redeemable at the Company's option after August 1, 1995 and is subject to mandatory redemption at the rate of 625,000 shares per year beginning February 1, 1994. In addition, the holder of the \$9.75 Preferred Stock (other than the Conversion Waiver Shares) is entitled to elect up to two individuals to the Company's Board of Directors and vote as a class on any transaction between the Company and any holder of 5% or more of the outstanding Common Stock that requires stockholder approval and certain matters separately affecting the holders of the \$9.75 Preferred Stock. The holders of the Conversion Waiver Shares may only vote on certain matters separately affecting

the holders of the \$9.75 Preferred Stock. In connection with the issuance of the \$9.75 Preferred Stock, the Company agreed to certain financial covenants relating to the issuance of debt, capital expenditures, the payment of dividends, the repurchase of stock and the disposition of certain assets.

\$4.00 Cumulative Convertible Preferred Stock

Each outstanding share of \$4.00 Cumulative Convertible Preferred Stock (the "\$4.00 Preferred Stock") (4,565,017 shares authorized) is entitled to one vote, is convertible at any time into shares of the Company's Common Stock (2,29751 shares at December 31, 1991), shall receive annual cash dividends of \$4.00 per share, is callable at \$50.00 per share (\$216.7 million in the aggregate at December 31, 1991) and has a liquidation value of \$50.00 per share (\$216.7 million in the aggregate at December 31, 1991) plus accrued but unpaid dividends, if any.

14 Common Stock

	Shares	Amount
January 1, 1989	90,708,592	\$ 90.7
Employee Benefit Plan purchases	100,850	.1
Exercise of Stock Options	177,801	.2
Fractional shares exchanged for cash	(14)	
January 1, 1990	90,987,229	91.0
Public offering	9,000,000	9.0
Exercise of Stock Options	227,536	.2
Conversion of zero-coupon convertible notes	8,587	
Fractional shares exchanged for cash	(4)	
January 1, 1991	100,223,348	100.2
Exercise of Stock Options	57,831	.1
Dividend Reinvestment and Stock Purchase Plan	2,044,315	2.0
Fractional shares exchanged for cash	(4)	
Restricted Stock	453,420	.5
December 31, 1991	102,778,910	\$102.8

In June 1990, the Company issued 9,000,000 shares of Common Stock and received net proceeds of \$89.8 million, after deducting related fees and expenses. The

Company used \$69.0 million of the net proceeds from the offering to repurchase and restructure shares of \$9.75 Preferred Stock (see "Preferred Stock"). The remaining net proceeds from the issuance were used for general corporate purposes.

On July 30, 1991, the Company's Dividend Reinvestment and Stock Purchase Plan (the "Plan") became effective. The Plan allows holders of Common Stock to purchase additional shares at a 3% discount from the current market prices without paying brokerage commissions or other charges. In addition, if the Company pays a dividend on its Common Stock in the future, common stockholders may then reinvest the amount of those dividends in additional shares also at a 3% discount from the current market prices.

At December 31, 1991, there were 41.4 million shares of Common Stock reserved for issuance upon conversion of Preferred Stock and zero-coupon convertible notes, exercises of stock options or issuance under certain employee benefit plans.

The Company has an Employee Shareholding and Investment Plan ("ESIP") which allows eligible participating employees to contribute a certain percentage of their salaries (1%-10%) to a trust for investment in any of four funds, one of which consists of the Company's Common Stock. The Company matches the participating employee's contribution to the ESIP (up to 6% of base pay); such matching contribution is charged against earnings and invested in the ESIP fund which consists of the Company's Common Stock. The charge against earnings for the Company's contribution to the ESIP was \$2.4 million, \$2.2 million and \$2.0 million in 1991, 1990 and 1989, respectively.

In 1988, the Company adopted a Preferred Share Purchase Rights Plan. The plan issued one right for each share of Common Stock and 7.92 rights for each share of \$9.75 Cumulative Convertible Preferred Stock outstanding as of the close of business on September 12, 1988. The rights, which entitle the holder to purchase from the Company one one-hundredth of a share of a new series of junior preferred stock at \$23.00 per share, become exercisable if a person becomes the beneficial owner of 20% or more of the Company's Common Stock or of an amount that the Board of Directors determines is intended to cause the Company to take certain actions not in the best long-term interests of the Company and its stockholders. The rights also become exercisable if a person

makes a tender offer or exchange offer for 30% or more of the Company's outstanding Common Stock. The rights may be redeemed at \$1.0 per right under certain circumstances.

15 Paid-In Capital and Accumulated Deficit

	Paid-in Capital	Accumulated Deficit
January 1, 1989	\$919.0	\$ (983.6)
Net loss		(31.0)
Dividends on Preferred Stock	(46.6)	
Employee Benefit Plan purchases	(.2)	
Exercise of Stock Options	1.6	
Restricted Stock	(6.2)	
January 1, 1990	867.6	(1,014.6)
Net income		7.3
Dividends on Preferred Stock	(44.0)	
Public offering of Common Stock	80.8	
Repurchase and restructuring of \$9.75 Preferred Stock	(22.9)	
Exercise of Stock Options	1.2	
Restricted Stock	(1.5)	
Conversion of zero-coupon convertible notes	.1	
January 1, 1991	881.3	(1,007.3)
Net loss		(11.2)
Dividends on Preferred Stock	(41.7)	
Dividend Reinvestment and Stock Purchase Plan	15.0	
Exercise of Stock Options	.2	
Restricted Stock	2.7	
December 31, 1991	\$857.5	\$ (1,018.5)

16 Common Treasury Stock

	Shares	Amount
January 1, 1989	(873.079)	\$ (14.1)
Employee Benefit Plan purchases	107.680	1.7
Restricted Stock	456.700	7.4
January 1, 1990	(308,699)	(5.0)
Restricted Stock	212,590	3.4
January 1, 1991	(96,109)	(1.6)
Restricted Stock	(26,700)	(.4)
December 31, 1991	(122,809)	\$ (2.0)

17 Stock Options

The Company's 1986 Long-Term Incentive Plan (the "Incentive Plan"), administered by the Compensation Committee of the Board of Directors, permits the grant to officers and certain key employees of stock options, stock appreciation rights ("SARs"), performance units and awards of Common Stock or other securities of the Company on terms and conditions determined by the Compensation Committee of the Board of Directors.

The grant or exercise of an option does not result in a charge against the Company's earnings because all options have been granted at exercise prices approximating the market value of the stock at the date of grant. However, any excess of Common Stock market price over the option price of options which include SARs does result in a charge against the Company's earnings: a subsequent decline in market price results in a credit to earnings, but only to a maximum of the earnings charges incurred in prior years on unexercised SARs.

Stock option activity was as follows:

	1991	1990	1989
Outstanding at			
January 1	1,900,776	2,031,621	2,326,910
Granted		274,500	4,000
Exercised	(57,831)	(300,575)	(177,797)
Cancelled	(237,272)	(104,770)	(121,492)
Outstanding at			
December 31	1,605,673	1,900,776	2,031,621

Stock options were exercised in 1991, 1990 and 1989 at per share prices ranging from \$6.625 to \$7.957, \$6.625 to \$11.50 and \$6.625 to \$9.786, respectively. Exercise prices of stock options outstanding at December 31, 1991 ranged from \$6.25 to \$16.829 per share. There was no charge against or credit to earnings for SARs in 1991. Activity relating to SARs in 1990 and 1989 resulted in a credit of \$.9 million and a charge of \$1.6 million, respectively.

Under the Incentive Plan, the Company granted Restricted Stock. The amount of the grant price is amortized over the vesting period of the grant as a charge against earnings. The charge against earnings was \$2.8 million in 1991, \$1.9 million in 1990 and \$1.2 million in 1989.

At December 31, 1991 and 1990, there were 412,484 and 690,493 shares of Common Stock, respectively, reserved for future grants under the Incentive Plan. At December 31, 1991, stock options representing 1,605,673 shares of Common Stock were exercisable and 834,280 shares of Restricted Stock were held for vesting purposes under all incentive plans of the Company.

18 Leases

The Company leases certain machinery and equipment, facilities and office space under cancellable and noncancellable operating leases, most of which expire within 20 years and may be renewed.

Minimum annual rentals for operating leases at December 31, 1991 were as follows:

1992	\$ 34.2
1993	26.4
1994	24.5
1995	19.4
1996	10.4
1997 and thereafter	48.2
	\$163.1

Minimum annual rentals have not been reduced by minimum sublease rentals of \$51.0 million due in the future under noncancellable subleases.

Rental expense for operating leases was as follows:

	1991	1990	1989
Total rentals	\$67.7	\$60.9	\$40.1
Less - Sublease rental income	5.2	5.8	5.5
Rental expense	\$62.5	\$55.1	\$34.6

19 Commitments and Contingencies

Environmental Matters

The Company has retained responsibility for certain environmental liabilities of its chemicals business ("Chemicals") sold to Occidental Petroleum Corporation in 1986 and certain other disposed of businesses. In the opinion of the Company, environmental remediation has been substantially completed at all former plant sites where remediation is required, except for two New Jersey sites, Newark and Kearny.

The Company will be responsible for remediation at the former agricultural chemical plant in Newark under a consent decree entered in November

1990 with the United States Environmental Protection Agency and the New Jersey Department of Environmental Protection (the "DEP").

The Company will continue to implement interim remedial actions and to perform remedial investigations and feasibility studies, and if necessary, the Company will then implement additional remedial actions under an Administrative Consent Order issued by the DEP in April 1990 covering sites in Kearny and Secaucus, New Jersey where chromite ore residue from the Kearny plant was utilized, as well as the plant site. The Company has provided financial assurance for performance under the order in the form of, and limited to, a \$20.0 million letter of credit and a \$31.5 million capital fund which is being established incrementally through April 1, 1993.

The Company also has responsibility for Chemical's share of the remediation cost for a number of other non-plant sites, where wastes from plant operations by Chemicals were allegedly disposed of or have come to be located, including several commercial waste disposal sites.

At December 31, 1991, the environmental reserve balance was \$27.5 million which included a fourth quarter 1991 charge to earnings in the amount of \$6.0 million. The addition to the reserve in 1991 was necessary because, as additional information became available, the Company was able to better estimate the cost of environmental liabilities at certain locations. Total future costs for environmental activities cannot be reasonably estimated due to considerable uncertainties in these matters; however, it is likely that future charges against earnings may be required.

Kidder Peabody Litigation

In 1987, the Company filed a lawsuit in Texas state district court against Kidder, Peabody & Co. Incorporated ("Kidder Peabody"), Martin A. Siegel and Ivan F. Boesky seeking damages of at least \$300.0 million arising from alleged leaks by Siegel to Boesky of confidential information about the 1983 acquisition of Natomas Company by a predecessor of the Company. At the time, Siegel was an officer and director of Kidder Peabody, which acted as investment advisor for the Company and its predecessor in the Natomas acquisition. Subsequently, Kidder Peabody filed a declaratory judgment action in federal district court in New York City against the Company seeking a dec-

laration that it had no liability for the activities of Siegel and Boesky. In 1990, the federal district court in the New York action entered orders that restrained the Company from proceeding on its state law claims in Texas. In February 1991, the Second Circuit Court of Appeals in New York ("Second Circuit") overturned those orders, holding that the Company could pursue its claims in the Texas lawsuit. Thereafter, however, the federal district court entered new orders that the Company believes were inconsistent with the February 1991 opinion of the Second Circuit. In February 1992, the Second Circuit overturned the new orders entered by the district court and confirmed that the Company could pursue all of its claims in the Texas case. While the Company is seeking material damages in the Texas lawsuit, there can be no assurance as to the outcome of this litigation.

Report of Management

February 25, 1992

To the Stockholders
Maxus Energy Corporation

The Consolidated Financial Statements have been prepared in conformity with generally accepted accounting principles and have been audited by Price Waterhouse, independent accountants. The Company is responsible for all information and representations contained in the Consolidated Financial Statements. In the preparation of this information, it has been necessary to make estimates and judgments based on data provided by the Company's accounting and control systems.

In meeting its responsibility for the reliability of the Consolidated Financial Statements, the Company depends on its accounting and control systems. These systems are designed to provide reasonable assurance that assets are safeguarded against loss from unauthorized use and that transactions are executed in accordance with the Company's authorizations and are recorded properly. The Company believes that its accounting and control systems provide reasonable assurance that errors or irregularities that could be material to the Consolidated Financial Statements are prevented or would be detected within a timely period. The Company also requires that all officers and other employees adhere to a written business conduct policy.

The independent accountants provide an objective review as to the Company's reported operating results and financial position. The Company also has an active operations auditing program which monitors the functioning of the Company's accounting and control systems and provides additional assurance that the Company's operations are conducted in a manner which is consistent with applicable laws.

The Board of Directors pursues its oversight role for the Consolidated Financial Statements through the Audit Review Committee which is composed solely of directors who are not employees of the Company. The Audit Review Committee meets with the Company's financial management and operations auditors periodically to review the work of each and to monitor the discharge of their responsibilities. The Audit Review Committee also meets periodically with the Company's independent accountants, who have free access to the Audit Review Committee without representatives of the Company present, to discuss accounting, control, auditing and financial reporting matters.



M. J. Barron
Vice President, Treasurer and Chief Financial Officer



G. R. Brown
Vice President and Controller

Dallas, Texas

Report of Independent Accountants

To the Stockholders and Board of Directors
of Maxus Energy Corporation

In our opinion, the accompanying consolidated balance sheet and the related consolidated statements of operations and of cash flows present fairly, in all material respects, the financial position of Maxus Energy Corporation and its subsidiaries at December 31, 1991 and 1990, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1991, in conformity with generally accepted accounting principles. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with generally accepted auditing standards which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for the opinion expressed above.



Dallas, Texas
February 25, 1992

Maxus Energy Corporation
Supplementary Financial Information (Unaudited)

Data is as of December 31 of each year or for the year then ended and dollar amounts in tables are in millions, except per share.

Oil and Gas Producing Activities

The following are disclosures about the oil and gas producing activities of the Company as required by Statement of Financial Accounting Standards No. 69.

Results of Operations

Results of operations from all oil and gas producing activities are shown below. These results exclude revenues and expenses related to the purchase, processing and resale of natural gas and the sale of natural gas liquids extracted therefrom.

	United States			Indonesia			Other Foreign			Worldwide		
	1991	1990	1989	1991	1990	1989	1991	1990	1989	1991	1990	1989
Sales	\$235.2	\$276.5	\$248.9	\$487.4	\$333.0	\$287.3				\$722.6	\$609.5	\$536.2
Production costs	54.9	54.7	49.6	138.1	116.6	100.7				193.0	171.3	150.3
Exploration costs	35.5	37.3	29.0	12.7	9.2	7.8	\$ 13.3	\$ 18.8	\$ 13.0	66.5	65.3	49.8
Depreciation and depletion	96.7	104.5	121.2	95.8	76.6	102.5	2.7	.2	.1	195.2	181.3	223.8
(Gain) loss on sale of assets (a)	(8.1)	.8	(41.5)			(33.5)				(8.1)	.8	(75.0)
Other (b)	14.9	7.5	9.6	(3.2)	.6		(.6)	(.1)	.8	11.1	8.0	10.4
	193.9	204.8	167.9	243.4	203.0	177.5	20.4	18.9	13.9	457.7	426.7	359.3
Income (loss) before tax provision	41.3	71.7	81.0	244.0	130.0	109.8	(20.4)	(18.9)	(13.9)	264.9	182.8	176.9
Provision (benefit) for income taxes	.8	1.4	12.0	137.3	75.0	51.8	(.4)	(.3)	(2.0)	137.7	76.1	61.8
Results of operations	\$ 40.5	\$ 70.3	\$ 69.0	\$ 106.7	\$ 55.0	\$ 58.0	\$ (20.0)	\$ (18.6)	\$ (11.9)	\$ 127.2	\$ 106.7	\$ 115.1

(a) The 1989 United States gain on sale of assets includes the \$27.7 million gain realized on the sale of the Company's Canadian subsidiary.

(b) Includes United States gathering and processing costs related to sales. Such costs were \$12.8 million, \$14.1 million and \$10.5 million for 1991, 1990 and 1989, respectively.

Capitalized Costs

Included in properties and equipment are capitalized amounts applicable to the Company's oil and gas producing activities. Such capitalized amounts include the cost of mineral interests in properties, completed and incomplete wells and related support equipment as follows:

	<i>United States</i>			<i>Indonesia</i>			<i>Other Foreign</i>			<i>Worldwide</i>		
	<i>1991</i>	<i>1990</i>	<i>1989</i>	<i>1991</i>	<i>1990</i>	<i>1989</i>	<i>1991</i>	<i>1990</i>	<i>1989</i>	<i>1991</i>	<i>1990</i>	<i>1989</i>
Proved properties	\$1,207.3	\$1,276.9	\$1,242.3	\$1,277.8	\$1,155.5	\$966.2	\$10.0	\$7.8	\$7.6	\$2,495.1	\$2,440.2	\$2,216.1
Unproved properties	60.4	83.3	89.6	.7	2.0	2.0	9.5	4.4	3.4	70.6	89.7	95.0
	1,267.7	1,360.2	1,331.9	1,278.5	1,157.5	968.2	19.5	12.2	11.0	2,565.7	2,529.9	2,311.1
Less—Accumulated depreciation and depletion	839.8	928.0	880.1	825.7	699.5	590.6	1.7	1.0	.8	1,667.2	1,628.5	1,471.5
	\$ 427.9	\$ 432.2	\$ 451.8	\$ 452.8	\$ 458.0	\$377.6	\$17.8	\$11.2	\$10.2	\$ 898.5	\$ 901.4	\$ 839.6

Costs Incurred

Costs incurred by the Company in its oil and gas producing activities (whether capitalized or charged against earnings) were as follows:

	<i>United States</i>			<i>Indonesia</i>			<i>Other Foreign</i>			<i>Worldwide</i>		
	<i>1991</i>	<i>1990</i>	<i>1989</i>	<i>1991</i>	<i>1990</i>	<i>1989</i>	<i>1991</i>	<i>1990</i>	<i>1989</i>	<i>1991</i>	<i>1990</i>	<i>1989</i>
Property acquisition costs	\$ 96.3	\$ 25.5	\$22.9	\$ 7	\$ 2.4		\$ 1.4	\$.8		\$ 98.4	\$ 28.7	\$ 22.9
Exploration costs	43.4	55.2	41.3	12.7	9.2	\$ 7.8	22.7	19.2	\$15.3	78.8	83.6	64.4
Development costs	30.7	42.4	33.9	89.9	154.5	63.5	2.2			122.8	196.9	97.4
	\$170.4	\$123.1	\$98.1	\$103.3	\$166.1	\$71.3	\$26.3	\$20.0	\$15.3	\$300.0	\$309.2	\$184.7

Oil and Gas Reserves

The following table represents the Company's net interest in estimated quantities of developed and undeveloped reserves of crude oil, condensate, natural gas liquids and natural gas and changes in such quantities at year-end 1991, 1990 and 1989. Net proved reserves are the estimated quantities of crude oil and natural gas which geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions. Proved developed reserves are proved reserve volumes that can be expected to be recovered through existing wells with existing equipment and operating methods. Proved undeveloped reserves are proved reserve volumes that are expected to be recovered from new wells on undrilled acreage or from existing wells where a significant expenditure is required for recompletion.

Crude Oil (millions of barrels)	1991				1990				1989			
	United States	Indonesia	Other Foreign	Total	United States	Indonesia	Other Foreign	Total	United States	Indonesia	Other Foreign	Total
Net Proved Developed and Undeveloped Reserves												
Beginning of year	22.3	122.8	20.8	165.9	22.3	145.2	20.6	188.1	31.8	136.0	26.7	194.5
Revisions of previous estimates	1.3	44.2(b)	6.7	52.2	1.2	(15.4)(b)	(3.3)	(17.5)	(1.8)	(3.6)	(3.2)	(8.6)
Purchase of reserves in place	1.2			1.2	.3			.3	.4			.4
Extensions, discoveries and other additions	.3	13.0(b)		13.3	2.4	8.3(b)	3.5	14.2	.8	43.1	7.8	51.7
Improved recovery		7.4		7.4								
Production	(3.6)	(24.6)		(28.2)	(3.7)	(15.3)		(19.0)	(4.0)	(16.1)		(20.1)
Sales of reserves in place	(6.9)			(6.9)	(.2)			(.2)	(4.9)	(14.2)	(10.7)	(29.8)
End of year	14.6	162.8	27.5(c)	204.9	22.3	122.8	20.8	165.9	22.3	145.2	20.6	188.1

Net Proved Developed Reserves

Beginning of year	20.5	105.9		126.4	19.8	55.8		75.6	24.1	54.7	9.9	88.7
End of year	13.9	137.9		151.8	20.5	105.9		126.4	19.8	55.8		75.6

Natural Gas(a) (billions of cubic feet)	1991			1990			1989			
	United States	Indonesia	Total	United States	Indonesia	Total	United States	Indonesia	Other Foreign	Total
Net Proved Developed and Undeveloped Reserves										
Beginning of year	642	52	694	633	47	680	689	61	75	825
Revisions of previous estimates	(11)	(13)	(24)	29	5	34	25	3		28
Purchase of reserves in place	113		113	5		5	15			15
Extensions, discoveries and other additions	11	2	13	74	6	80	37	9		46
Production	(87)	(4)	(91)	(95)	(6)	(101)	(96)	(8)		(104)
Sales of reserves in place	(33)		(33)	(4)		(4)	(37)	(18)	(75)	(130)
End of year	635	37	672	642	52	694	633	47	-	680

Net Proved Developed Reserves

Beginning of year	594	33	627	606	34	640	654	43	71	768
End of year	568	23	591	594	33	627	606	34		640

Natural Gas Liquids (millions of barrels)	1991			1990			1989		
	United States	Indonesia	Total	United States	Indonesia	Total	United States	Indonesia	Total
Net Proved Developed and Undeveloped Reserves									
Beginning of year	31.5	5.1	36.6	33.1	4.6	37.7	34.4	6.0	40.4
Revisions of previous estimates	(4.8)	.1	(4.7)	.4	.5	.9	1.5	.3	1.8
Purchase of reserves in place	7.2		7.2	.1		.1	.1		.1
Extensions, discoveries and other additions	.6	.2	.8	1.0	.6	1.6	.8	.9	1.7
Production	(3.2)	(.5)	(3.7)	(3.1)	(.6)	(3.7)	(3.4)	(.8)	(4.2)
Sales of reserves in place	(.1)		(.1)				(.3)	(1.8)	(2.1)
End of year	31.2	4.9	36.1	31.5	5.1	36.6	33.1	4.6	37.7
Net Proved Developed Reserves									
Beginning of year	29.8	3.1	32.9	31.3	3.3	34.6	32.6	4.2	36.8
End of year	29.6	3.1	32.7	29.8	3.1	32.9	31.3	3.3	34.6

(a) Natural gas is reported on the basis of actual or calculated volumes which remain after removal, by lease or field separation facilities, of liquefiable hydrocarbons and of non-hydrocarbons where they occur in sufficient quantities to render the gas unmarketable. Natural gas reserve volumes include liquefiable hydrocarbons approximating 6% of total gas reserves in the United States and 19% in Indonesia which are recoverable at natural gas processing plants downstream from the lease or field separation facilities. Such recoverable liquids also have been included in natural gas liquids reserve volumes.

(b) The 1990 and 1991 changes reflect the impact of the change in the price of crude oil on the barrels to which the Company is entitled under the terms of the Indonesian production sharing contracts. The 1990 change due to the impact of increasing prices was a reduction of 20.7 million barrels. Decreasing prices in 1991 resulted in an increase of 25.6 million barrels.

(c) Subsequent to year-end 1991, Maxus signed a letter of understanding to become operator of Block 16 in Ecuador and to increase its ownership interest from 15% to 35%. This will add 36.7 million barrels of new reserves.

Future Net Cash Flows

The standardized measure of discounted future net cash flows relating to the Company's proved oil and gas reserves is calculated and presented in accordance with Statement of Financial Accounting Standards No. 69. Accordingly, future cash inflows were determined by applying year-end oil and gas prices (adjusted for future fixed and determinable price changes) to the Company's estimated share of future production from proved oil and gas reserves. Future production and development costs were computed by applying year-end costs to future years. Future income taxes were derived by applying year-end statutory tax rates to the estimated net future cash flows. A prescribed 10% discount factor was applied to the future net cash flows. Because prices have declined since year-end, a calculation of the standardized measure using current prices would result in lower discounted future net cash flows for 1991 than is presented.

In the Company's opinion, this standardized measure is not a representative measure of fair market value, and the standardized measure presented for the Company's proved oil and gas reserves is not representative of the reserve value. The standardized measure is intended only to assist financial statement users in making comparisons between companies.

	United States			Indonesia			Other Foreign			Worldwide		
	1991	1990	1989	1991	1990	1989	1991	1990	1989	1991	1990	1989
Future cash inflows	\$1,582.1	\$2,077.8	\$1,753.4	\$3,293.6	\$3,619.4	\$2,619.5	\$365.8	\$390.7	\$347.2	\$5,241.5	\$6,087.9	\$4,720.1
Future production and development costs	(487.7)	(532.1)	(433.9)	(1,915.2)	(1,303.9)	(1,373.5)	(266.1)	(233.4)	(211.1)	(2,669.0)	(2,069.4)	(2,018.5)
Future income tax expenses	(255.7)	(425.1)	(366.4)	(722.0)	(1,211.3)	(658.7)	(20.5)	(54.3)	(50.6)	(998.2)	(1,690.7)	(1,075.7)
Future net cash flows	838.7	1,120.6	953.1	656.4	1,104.2	587.3	79.2	103.0	85.5	1,574.3	2,327.8	1,625.9
Annual discount at 10% rate	(193.0)	(268.9)	(170.8)	(220.6)	(272.6)	(176.4)	(65.9)	(78.1)	(68.5)	(480.1)	(619.6)	(415.7)
Standardized measure of discounted future net cash flows	\$ 645.1	\$ 851.7	\$ 782.3	\$ 435.8	\$ 831.6	\$ 410.9	\$ 13.3	\$ 24.9	\$ 17.0	\$ 1,094.2	\$ 1,708.2	\$ 1,210.2

The following are the principal sources for change in the standardized measure:

	1991	1990	1989
January 1	\$1,708.2	\$1,210.2	\$1,156.4
Sales and transfers of oil and gas produced, net of production costs	(526.8)	(432.4)	(380.6)
Net changes in prices and production costs	(1,149.8)	815.3	302.0
Extensions, discoveries and improved recovery, less related costs	147.5	221.1	194.0
Previously estimated development costs incurred during the year	(59.8)	94.8	(14.3)
Revisions of previous quantity estimates	122.3	95.5	(19.8)
Purchase of reserves in place	84.4	8.0	
Sale of reserves in place	(63.2)	(4.4)	(205.9)
Net change in income taxes	530.3	(512.7)	(73.4)
Accretion of discount	280.0	178.9	157.1
Other	21.1	33.9	94.7
December 31	\$1,094.2	\$1,708.2	\$1,210.2

Five-Year Financial Summary

	1991	1990	1989	1988 (a)	1987
Operations					
Sales and operating revenues	\$ 790.8	\$ 685.4	\$ 600.8	\$ 571.8	\$ 654.7
Income (loss) from continuing operations	(11.2)	7.3	(31.0)	(61.6)	(486.9)
Loss from discontinued operations					(52.7)
Income (loss) before cumulative effect of accounting change	(11.2)	7.3	(31.0)	(61.6)	(539.6)
Cumulative effect of accounting change				(70.0)	
Net income (loss)	\$ (11.2)	\$ 7.3	\$ (31.0)	\$ (131.6)	\$ (539.6)
Financial Position					
Current assets	\$ 225.9	\$ 248.9	\$ 324.9	\$ 197.6	\$ 227.7
Current liabilities	249.3	260.4	276.8	255.7	250.2
Properties and equipment, less accumulated depreciation and depletion	1,075.2	1,077.1	1,022.3	1,392.2	1,561.3
Total assets	1,451.5	1,470.2	1,477.8	1,719.8	1,900.5
Long-term debt, including portion payable within one year	788.9	766.5	747.6	871.0	796.3
Deferred income taxes	142.9	145.6	125.6	178.2	231.7
Redeemable preferred stock	250.0	250.0	300.0	300.0	300.0
Stockholders' equity (deficit)	(55.9)	(23.1)	(56.7)	25.4	197.0
Other Data					
Expenditures for properties and equipment—including dry hole costs	\$ 272.3	\$ 272.9	\$ 165.8	\$ 160.3	\$ 199.0
Total exploration and development expenditures (b)	300.0	309.2	184.7	188.0	194.1
Dividends paid, including preferred (c)	41.7	44.0	46.6	46.6	53.8
Depreciation, depletion and amortization	203.6	190.5	234.0	268.7	320.3
Per Common Share					
Loss from continuing operations	\$ (.52)	\$ (.38)	\$ (.86)	\$ (1.21)	\$ (5.67)
Loss from discontinued operations					(.56)
Loss before cumulative effect of accounting change	(.52)	(.38)	(.86)	(1.21)	(6.23)
Cumulative effect of accounting change				(.78)	
Net loss	\$ (.52)	\$ (.38)	\$ (.86)	\$ (1.99)	\$ (6.23)
Dividends paid (c)					\$.10

(a) Reflects a change in the method of accounting for income taxes.

(b) Whether capitalized or expensed.

(c) See "Long-Term Debt and Credit Arrangements" on page 37 for discussion of dividend restrictions.

Quarterly Data

	1991				
	March 31.	June 30.	September 30.	December 31.	For the Year
Sales and operating revenues	\$210.4	\$186.9	\$188.2	\$205.3	\$790.8
Gross profit (a)	100.8	64.3	69.2	78.5	312.8
Net income (loss)	14.0	(13.6)	(8.2)	(3.4)	(11.2)
Net income (loss) per Common Share	.04	(.24)	(.19)	(.14)	(.52)
Market price per share					
Common					
High	9 3/4	9 1/4	10 3/4	9 1/2	10 3/4
Low	7 1/8	7 7/8	8	6 1/4	6 1/4
\$4.00 Preferred					
High	39 1/2	39 1/8	40 7/8	40 1/2	40 7/8
Low	34 1/2	35 1/2	36	33 5/8	33 5/8

	1990				
	March 31.	June 30.	September 30.	December 31.	For the Year
Sales and operating revenues	\$159.2	\$140.0	\$172.3	\$213.9	\$685.4
Gross profit (a)	61.9	40.4	63.4	86.0	251.7
Net income (loss)	3.4	(16.3)	4.1	16.1	7.3
Net income (loss) per Common Share	(.09)	(.30)	(.06)	.06	(.38)
Market price per share					
Common					
High	11 5/8	12 1/8	13	11 7/8	13
Low	9 1/2	9 1/2	9 5/8	8 1/8	8 1/8
\$4.00 Preferred					
High	41	40 1/2	40 5/8	39 1/4	41
Low	38 5/8	38 1/4	37 1/4	34 1/2	34 1/2

(a) Gross profit is sales and operating revenues less purchases and operating expenses and depreciation, depletion and amortization.

Due to the Dividend Reinvestment and Stock Purchase Plan in 1991 and the public offering of Common Stock in 1990, the weighted average number of Common Shares outstanding used in calculating net income (loss) per Common Share varied significantly between the individual quarters and for the year. As a consequence of this share difference, along with the wide variation in quarterly earnings, calculated net income (loss) per Common Share for both years does not equal the sum of the quarters.

Maxus Energy Corporation
Exploration and Production Statistics (historic)

	1991	1990	1989	1988	1987
Net Proved Oil Reserves (millions of barrels)					
United States	14.6	22.3	22.3	31.7	38.4
Indonesia	162.8	122.8	145.2	136.0	79.7
Other Foreign *	27.5	20.8	20.6	26.7	11.3
Worldwide Total	204.9	165.9	188.1	194.4	129.4
Net Proved Natural Gas Reserves (billions of cubic feet)					
United States	635	642	633	689	744
Indonesia	37	52	47	61	52
Other Foreign *	-	-	-	75	115
Worldwide Total	672	694	680	825	911
Net Oil Sales (000 bpd)					
United States	9.9	10.2	10.9	12.5	12.6
Indonesia	67.3	41.9	44.0	38.7	42.6
Other Foreign *	-	-	-	2.8	4.1
Worldwide Total	77.2	52.1	54.9	54.0	60.3
Average Oil Sales Price (per bbl)					
United States	\$19.49	\$22.26	\$17.97	\$14.80	\$17.03
Indonesia	19.59	21.32	17.52	15.51	17.58
Other Foreign *	-	-	-	12.88	15.89
Worldwide Average	19.58	21.50	17.60	15.21	17.34
Net Natural Gas Sales (mmcfpd)					
United States produced	207	234	236	245	245
United States purchased	61	61	60	61	65
Indonesia	7	7	10	13	17
Other Foreign *	-	-	-	19	15
Worldwide Total	275	302	306	338	342
Average Natural Gas Sales Price (per mcf)					
United States produced	\$ 1.66	\$ 1.77	\$ 1.70	\$ 1.65	\$ 1.52
United States purchased	1.51	1.70	1.60	1.57	1.43
Indonesia	.20	.20	.20	.20	.20
Other Foreign *	-	-	-	1.25	1.46
Worldwide Total	1.59	1.72	1.63	1.56	1.43
United States NGL Sales (000 bpd)					
Produced	8.8	8.5	9.3	10.9	10.0
Purchased	7.9	7.7	8.6	10.3	9.9
United States Total	16.7	16.2	17.9	21.2	19.9
United States Average NGL Sales Price (per bbl)					
Produced	\$12.16	\$13.48	\$ 9.21	\$ 8.76	\$ 9.58
Purchased	12.04	13.64	9.34	8.88	9.90
United States Average	12.11	13.56	9.27	8.82	9.74
Indonesian NGL Sales (000 bpd)					
	1.4	1.6	2.2	3.4	3.4
Indonesian Average NGL Sales Price (per bbl)					
	\$10.36	\$10.51	\$ 6.58	\$ 8.10	\$ 8.06
Net Natural Gas Production (mmcfpd)					
United States	238	261	262	279	273
Indonesia	11	16	22	33	37
Other Foreign *	-	-	-	19	15
Worldwide Total	249	277	284	331	325

*includes Canadian subsidiary, which was sold effective Jan. 1, 1989.

Officers*

Charles L. Blackburn
*Chairman, President and
Chief Executive Officer*

Steven G. Crowell
*Senior Vice President,
North American Exploration
and Production*

George W. Pasley
*Senior Vice President, International
Exploration and Production*

Noel D. Rietman
Senior Vice President, Operations

Martin A. Schuepbach
Senior Vice President, Exploration

W.H. (Butch) Bagley
*Vice President,
North American Operations*

Michael J. Barron
*Vice President, Treasurer and
Chief Financial Officer*

Glen R. Brown
Vice President and Controller

Mark J. Gentry
*Vice President, Human Resources and
General Services*

A.K. Gupta
*Vice President,
International Operations*

Harvey R. Klingensmith
*Vice President,
International Exploration*

McCarter Middlebrook
Vice President and General Counsel

Earl J. Ritchie
*Vice President,
North American Exploration*

Richard J. Sharples
*Vice President,
Hydrocarbon Marketing*

Directors*

J. David Barnes
*Chairman Emeritus, Mellon Bank
Corporation and Mellon Bank, N.A.,
Pittsburgh, Pennsylvania
Committees: Compensation and Board
Organization*

Charles L. Blackburn
*Chairman, President and
Chief Executive Officer,
Maxus Energy Corporation, Dallas, Texas
Committees: Executive and Board
Organization*

Darrell L. Black
*Former Vice Chairman and Chief
Administrative Officer,
Maxus Energy Corporation, Dallas, Texas
Committees: Executive and Benefit Plans*

B. Clark Burchfiel
*Schlumberger Professor of Geology,
Massachusetts Institute of Technology,
Cambridge, Massachusetts
Committee: Compensation*

Philip E. Coldwell
*Chairman, Coldwell Financial
Consultants, Washington, D.C.
Committees: Audit Review and Executive*

Bruce B. Dice
*Oil and Gas Consultant;
President, Dice Exploration Company, Inc.,
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Committees: Audit Review and Board
Organization*

Charles W. Hall
*Senior Partner, law firm of
Fulbright & Jaworski, Houston, Texas
Committees: Benefit Plans and Board
Organization*

Raymond A. Hay
*Chairman, The LTV Corporation, steel,
aerospace, defense and energy business,
Dallas, Texas
Committee: Audit Review*

George L. Jackson
*Oilfield Service Consultant,
Kerrville, Texas
Committees: Compensation and Board
Organization*

John T. Kimbell
*President, John Kimbell Associates,
business consulting firm,
Boston, Massachusetts
Committees: Executive and Benefit Plans*

Richard W. Murphy
*Senior Fellow, Middle East, Council on
Foreign Relations, New York, New York;
Consultant, Kissinger Associates,
New York, New York
Committee: Compensation*

W. Thomas York
*Consultant; former Chairman and Chief
Executive Officer of AMF Incorporated,
manufacturer of leisure and industrial
products, White Plains, New York
Committee: Audit Review*

*As of March 1, 1992

Guide to Abbreviations

bcf	billion cubic feet (of natural gas)
bbl(s)	barrel(s) (of oil)
boe	barrel of oil equivalent
bpd	barrels (of oil) per day
BTU(s)	British Thermal Unit(s)
mcf	thousand cubic feet (of gas)
mcfpd	thousand cubic feet (of gas) per day
mmcf	million cubic feet (of gas)
mmcfpd	million cubic feet (of gas) per day
ngl	natural gas liquids

MAXUS

Maxus Energy Corporation

717 N. Harwood Street

Dallas, Texas 75201

Diamond Shamrock Chemical Company

300 Union Commerce Building / Cleveland, Ohio 44118 / Telephone (216) 621-8100



1505016

October 12, 1972

Department of Health
State of Ohio
Solid Waste Unit
P. O. Box 118
Columbus, Ohio 43216

Attention of Mr. Oscar C. Singer, Assistant Engineer

Gentlemen:

Please find attached completed industrial solid waste survey forms
for the Painesville Works of the Diamond Shamrock Chemical Company.

If you have need for any further information, please advise.

Sincerely,

DIAMOND SHAMROCK CHEMICAL COMPANY

S. G. Lane
Regional Environmental Control Manager

SGL:mk
Attachment

A Unit of Diamond Shamrock Corporation

00136

OHIO DEPARTMENT OF HEALTH
DIVISION OF ENGINEERING

INDUSTRIAL SOLID WASTE SURVEY

Date of Interview 9/13/72

I. GENERAL INFORMATION

A. Identification of Establishment

1. Name of Establishment: Diamond Shamrock Chemical Company
2. Mailing Address of Establishment: P. O. Box 430
(Number) (Street) (City) (State) (Zip)
Painesville Lake Ohio 44077
(City) (County) (State) (Zip)
3. Location of Establishment: Fairport Harbor/Painesville Township
(City) (County) (State) (Zip)
4. Person interviewed: Ralph H. Parsons Works Manager (Title) (Phone No.)
(Name) (Title) (Phone No.)

B. Industrial Classification

1. Size of Area Covered by Plant, Farm, or Facility: 300 (Acres) ☒ Less (Check One)
(Square Feet) ☐ Sq. Ft.

2. If establishment is a farm, give its outlooking acreage: _____ acres.

3. Standard Industrial Classification

2-Digit SIC Code (2-digit) 2-Digit SIC Code of Industry
(a) 281 (a) Industrial Organic & Inorganic Chemicals
(b) 33 (b) Primary Metal Industry
(c) _____ (c) _____

4. Size of Labor Force

Type of Employee	Total Number of Employees	Employees' Pay Schedule		
		No. Hourly/Day	No. Day/Week	No. Piece Rate
Production Workers	1014-Hourly	24	7	52
All Other Employees	302-Salary	8	5	52

00137

C101350

II. GENERATION AND PROCESSING OF SOLID WASTES

A. Waste Types	B. Quantity of Waste Generated Annually				C. On Site Waste Processing (2000 Estimate)															
	Tons/yr	Cubic Yds/yr	Is This an Estimate of Waste Quantity?		Seasonal Fluctuation	Composting or Recycling	Landfill	Incineration	Landfill	Other	Total	Notes								
			Yes	No																
1. Manure - bedding, feed, soil																				
2. Animal Carcasses & remains																				
3. Crop & Feed Residue																				
4. Food Processing Residue																				
5. Employee Catering Residue																				
6. Residential Solid Waste																				
7. Water & Sewage Treatment Sludge																				
8. Incinerator Residue																				
9. Soil, Stone, Ashes	59,130		X		X						X									
10. Wood	3,315		X		X						X									
11. Paper																				
12. Textiles																				
13. Rubber																				
14. Leather																				
15. Glass & Pottery																				
16. Plastics	390		X		X						X									
17. Incombustible Materials																				
18. Solid Ferrous Metal																				
19. Other Ferrous Metal																				
20. Non-Ferrous Metal																				
21. Organic Chemicals																				
22. Inorganic Chemicals	7,685		X		X						X									
23. Cores																				
24. Lagoon Sediment & sludge	20,415		X		X						X									
25. Other (Specify)																				
Fire Brick	1,000		X		X						X									

*Residue and intermediate products that resulted from on-site or off-site solid waste processing and related remedial activities.

00138

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111. 872416Z OF 22613 140700

[illegible]

Advanced and intermediate products that resulted from post-1980 production and require reduction practices.

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14. WASTE COLLECTION AND TRANSPORTATION

A. Waste Types	B. Collection Frequency (Times/Week)	C. Primary Method of Waste Transport (Check only one)						D. Type of Agency Performing Collection (Check)					E. Company-Owned Collection Trucks/Tramcars (Vol. (Hrs.))				
		Truck	Roll	Pipeline	Large or Small	Self, Chain, or Other Conveyer	Other (Specify)	City/County	Private Contractor	Municipality	Regional Authority	Company	Co-owned	Non-owned	Other	Truck	Tramcar
1. General Household, Food, Soil																	
2. Liquid Wastes & Sewage																	
3. Crop & Food Waste																	
4. Food Processing Waste																	
5. Industrial/Institutional Waste																	
6. Residuals of Solid Waste																	
7. Sludge & Sewage Treatment Sludge																	
8. Incinerator Residue																	
9. XXXXXX Waste	Daily		X	X				X									
10. Wood	22	X						X									
11. Paper	22	X						X									
12. Textiles																	
13. Rubber																	
14. Lumber																	
15. Glass & Pottery																	
16. Plastics	22	X															
17. Solvent/Flammable																	
18. Heavy Ferrous Metal	4	X						X									
19. Other Ferrous Metal	4	X						X									
20. Non-Ferrous Metal	4	X						X									
21. Organic Chemicals																	
22. Inorganic Chemicals	30.5	X		X				X									
23. Composites																	
24. Liquid Refrigerant & Insulation				X				X	X								
25. Other (Specify)																	
Fire Brick	1	X						X									

*Residuals and intermediate products that resulted from ~~process~~ or ~~incineration~~ solid waste processing and volume reduction practices.

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7. DISPOSITION OF SOLID WASTES

A. Waste Types	B. Final Disposition and Volume Reduction Methods (Indicate Percent of Waste Disposed at Each Facility and the Type of Disposition of Each)											
	Landfill	Incineration	Deep Well Injection	Surface Water Disposal	Land Application	Composting	Other Organic Recycling	Other Inorganic Recycling	Other	Other	Other	Other
1. General Wastewater, Food, Soil												
2. Animal Wastewater & Solids												
3. Food & Food Waste												
4. Food Processing Waste												
5. Employee Cafeteria Waste												
6. Pharmaceutical Solid Waste												
7. Paper & Sludge Treatment Sludge												
8. Industrial Wastewater												
9. Industrial Waste												
10. Sludge												
11. Paper												
12. Textiles												
13. Rubber												
14. Leather												
15. Glass & Pottery												
16. Plastics												
17. Protective Materials												
18. Solid Ferrous Metals												
19. Other Ferrous Metals												
20. Non-Ferrous Metals												
21. Organic Chemicals												
22. Inorganic Chemicals												
23. Composites												
24. Liquid Superconducting Materials												
25. Other (Specify)												
Fire Brick												

*Residues and intermediate products that resulted from company-owned waste processing and volume reduction practices.

**For each waste type, specify the percent of waste disposed of by each method. Alongside this percent figure, categorize the disposal facility owner according to three code letters: C = company owned, P = private contractor, M = Municipality, R = regional authority. (Example - if 55% of a waste type is disposed of at a company owned facility, enter 55% in the appropriate cell).

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VI. FINAL DISPOSAL AND WASTE REDUCTION SITES

NOTE: ON THE REVERSE SIDE OF THIS PAGE, GIVE THE NAMES AND ADDRESSES OF ESTABLISHED DISPOSAL AND WASTE REDUCTION FACILITIES.

A. Final Disposal and Waste Reduction Methods	B. Short Distance to Final Disposal or Waste Reduction Facility, miles (Specify Storage According to Site Summary)				C. Community-based Final Disposal Facilities			
	Community-based	Private Contractor	Municipality	Regional Authority	Date Initiated or Estimated 2000-2005	Estimated Community-based Life Years	Estimated Life Years	Costs Total/2000 \$/yr
1. Storage	1 mi.							
2. Land-filling								
3. Surface Burning								
4. Landfill	2500 ft.				1966	35 yrs.		70 acres
5. Storage in Land	1200 ft.							
6. Landfill	3200 ft.				1969	4 yrs.		
7. Composting								
8. Chemical Burns								
9. Incineration								
10. Sea Disposal								
11. Fed to Stock								
12. Underground Injection								
13. Other								
Specify								

VII. EXPENDITURES FOR SOLID-WASTE MANAGEMENT

A. Solid Waste Management Function	B. Internal Capital Costs of Function		C. Internal Annual Expenditures		D. Annual Charges by External Solid Waste Handlers			E. Total Annual Cost of Function \$/yr
	Initial Capital Investment \$/yr	Est. Life Spanning Years	Lower Transportation \$/yr	Lower Disposal Costs \$/yr	Private Contractor \$/yr	Municipality \$/yr	Regional Authority \$/yr	
Processing								
Storage								
Collection	230,278	Basin 15 yrs	6033	82,557				
Disposal	71,721	5 yrs.	2450	15,020	54,834			
Total	301,999		8483	97,577	54,834			

F. Total Annual Return from Savings = \$ 51,292/yr

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1111. ENTERPRISE PRODUCTION DATA

NOTE: 1. The information in this section may be supplemented with additional information, if available, in the company, in which case the information should not be considered to design it.

A. General Production Characteristics

Name of Product or Service	SIC Number (4-Digit)	Production Plant or Location (Name and Address)			
		Address	City	State	Zip
1. Name	291	745,000			
2. Code	291	77,000			
3. Name	291	85,000			
4.					
5.					
6.					
7.					
8.					

B. Production Input Factors

Name of Input Factor	Quantity of Materials and Services Required for Production (Specify using the Most Appropriate Unit of Measure)					
	Material	Material	Material	Material	Material	Material
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						



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11:43:23 359344 REP

ASR000 D 2 2

06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

LLI Sample No. SW 1894506
Date Reported 12/ 9/92
Date Submitted 11/14/92
Discard Date 12/24/92
Collected 11/13/93 by PJD
Time Collected 1700
P.O.
Rel.

BDSCF111392 Soil Sample
Chemical Land Holdings, Inc.

BDSCF SDG#

ANALYSIS

	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Moisture	22.0 % by wt.		0.5	0111C1200

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.

Mercury	< 0.3 mg/kg	0.3	015903500
VOA GC/MS Library Search	attached		089005500

The results from the volatile library search are listed on the attached

FORM 1E - VOA-TIC. The qualifiers appearing in the "Q" column are:

- B - detected in method blank
- D - determined in diluted sample
- J - estimated value
- N - presumptive evidence of a compound

Semivolatile Library Search	attached	089309500
-----------------------------	----------	-----------

The results from the semivolatile library search are listed on the attached

FORM 1F - SV-TIC. The qualifiers appearing in the "Q" column are:

- A - aldol condensate
- B - detected in method blank
- D - determined in diluted sample
- X - an isomer of the listed compound
- J - estimated value
- N - presumptive evidence of a compound

Arsenic (furnace method)	12.	mg/kg	4.	114504000
Lead (furnace method)	10.	mg/kg	10.	115504000
Selenium (furnace method)	< 2.	mg/kg	2.	116404000
Thallium (furnace method)	< 2.	mg/kg	2.	117304000
Aluminum	5,830.	mg/kg	60.	164301400
Antimony	< 40.	mg/kg	40.	164401400
Barium	70.	mg/kg	20.	164601400
Beryllium	< 1.	mg/kg	1.	164701400
Cadmium	< 4.	mg/kg	4.	164901400
Calcium	3,120.	mg/kg	60.	165001400
Chromium	19.	mg/kg	8.	165101400
Cobalt	< 10.	mg/kg	10.	165201400
Copper	17.	mg/kg	8.	165301400
Iron	15,800.	mg/kg	20.	165401400
Magnesium	2,060.	mg/kg	30.	165701400
Manganese	177.	mg/kg	4.	165801400
Nickel	20.	mg/kg	10.	166101400

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

EXHIBIT 48

Ramona V. Layman, Group Leader
Instrumental Water Chemistry



11:43:23 359344 REP
ASR000 D 2 2
06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

BDSCF111392 Soil Sample
Chemical Land Holdings, Inc.

LLI Sample No. SW 1894506
Date Reported 12/ 9/92
Date Submitted 11/14/92
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BDSCF SDG#	RESULT	LIMIT OF	LAB CODE
ANALYSIS	AS RECEIVED	QUANTITATION	
Potassium	500. mg/kg	100.	166201400
Silver	< 4. mg/kg	4.	166601400
Sodium	< 200. mg/kg	200.	166701400
Vanadium	11. mg/kg	4.	167101400
Zinc	50. mg/kg	40.	167201400
Total Cyanide	< 0.3 mg/kg	0.3	334304000
TCL Volatiles (EPA 3/90 SOW)	attached		427627000
TCL Semi-Volatiles (3/90 SOW)	attached		443854000
TCL Semi-Volatiles (3/90) cont	attached		443900000
Pesticides/PCBs (EPA 3/90 SOW)	attached		456231000

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301
128 06101 105.00 187400

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Ramona V. Layman, Group Leader
Instrumental Water Chemistry

Lancaster Laboratories, Inc.
12800 West 10th Avenue
Lancaster, PA 17602-8994
717-656-1300

See the following for more information on our services.



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Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

BDSCF111392 Soil Sample
Chemical Land Holdings, Inc.

LLI Sample No. SW 1894506
Date Reported 12/ 9/92
Date Submitted 11/14/92
Discard Date 12/24/92
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BDSCF SDG#	RESULT	LIMIT OF	LAB CODE
TCL Volatiles (EPA 3/90 SOW)	AS RECEIVED	QUANTITATION	
Chloromethane	< 10. ug/kg	10.	432300000N
Bromomethane	< 10. ug/kg	10.	432400000N
Vinyl Chloride	< 10. ug/kg	10.	432500000N
Chloroethane	< 10. ug/kg	10.	432600000N
Methylene Chloride	< 10. ug/kg	10.	432700000N
Acetone	< 10. ug/kg	10.	432800000N
Carbon Disulfide	< 10. ug/kg	10.	432900000N
1,1-Dichloroethene	< 10. ug/kg	10.	433000000N
1,1-Dichloroethane	< 10. ug/kg	10.	433100000N
1,2-Dichloroethene (total)	< 10. ug/kg	10.	433200000N
Chloroform	< 10. ug/kg	10.	433300000N
1,2-Dichloroethane	< 10. ug/kg	10.	433400000N
2-Butanone	< 10. ug/kg	10.	433500000N
1,1,1-Trichloroethane	< 10. ug/kg	10.	433600000N
Carbon Tetrachloride	< 10. ug/kg	10.	433700000N
Bromodichloromethane	< 10. ug/kg	10.	433800000N
1,2-Dichloropropane	< 10. ug/kg	10.	433900000N
cis-1,3-Dichloropropene	< 10. ug/kg	10.	434000000N
Trichloroethene	< 10. ug/kg	10.	434100000N
Dibromochloromethane	< 10. ug/kg	10.	434200000N
1,1,2-Trichloroethane	< 10. ug/kg	10.	434300000N
Benzene	< 10. ug/kg	10.	434400000N
trans-1,3-Dichloropropene	< 10. ug/kg	10.	434500000N
Bromoform	< 10. ug/kg	10.	434600000N
4-Methyl-2-pentanone	< 10. ug/kg	10.	434700000N
2-Hexanone	< 10. ug/kg	10.	434800000N
Tetrachloroethene	< 10. ug/kg	10.	434900000N
1,1,2,2-Tetrachloroethane	< 10. ug/kg	10.	435000000N
Toluene	< 10. ug/kg	10.	435100000N
Chlorobenzene	< 10. ug/kg	10.	435200000N
Ethylbenzene	< 10. ug/kg	10.	435300000N
Styrene	< 10. ug/kg	10.	435400000N
Xylene (total)	< 10. ug/kg	10.	435500000N

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ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Michele McClarin, B.A.
Group Leader, GC/MS Volatiles



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ASR000 D 2 2

06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

BDSCP111392 Soil Sample
Chemical Land Holdings, Inc.

LLI Sample No. SW 1894506
Date Reported 12/ 9/92
Date Submitted 11/14/92
Discard Date 12/24/92
Collected 11/13/93 by PJD
Time Collected 1700
P.O.
Rel.

BDSCP SDG#	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
TCL Semi-Volatiles (3/90 SOW)			
phenol	< 330. ug/kg	330.	444500000N
bis (2-chloroethyl) ether	< 330. ug/kg	330.	444600000N
2-chlorophenol	< 330. ug/kg	330.	444700000N
1,3-dichlorobenzene	< 330. ug/kg	330.	444800000N
1,4-dichlorobenzene	< 330. ug/kg	330.	444900000N
1,2-dichlorobenzene	< 330. ug/kg	330.	445000000N
2-methylphenol	< 330. ug/kg	330.	445100000N
2,2'-oxybis (1-Chloropropane)	< 330. ug/kg	330.	445200000N
4-methylphenol	< 330. ug/kg	330.	445300000N
N-nitrosodi-n-propylamine	< 330. ug/kg	330.	445400000N
hexachloroethane	< 330. ug/kg	330.	445500000N
nitrobenzene	< 330. ug/kg	330.	445600000N
isophorone	< 330. ug/kg	330.	445700000N
2-nitrophenol	< 330. ug/kg	330.	445800000N
2,4-dimethylphenol	< 330. ug/kg	330.	445900000N
bis (2-chloroethoxy) methane	< 330. ug/kg	330.	446000000N
2,4-dichlorophenol	< 330. ug/kg	330.	446100000N
1,2,4-trichlorobenzene	< 330. ug/kg	330.	446200000N
naphthalene	< 330. ug/kg	330.	446300000N
4-chloroaniline	< 330. ug/kg	330.	446400000N
hexachlorobutadiene	< 330. ug/kg	330.	446500000N
4-chloro-3-methylphenol	< 330. ug/kg	330.	446600000N
2-methylnaphthalene	< 330. ug/kg	330.	446700000N
hexachlorocyclopentadiene	< 330. ug/kg	330.	446800000N
2,4,6-trichlorophenol	< 330. ug/kg	330.	446900000N
2,4,5-trichlorophenol	< 830. ug/kg	830.	447000000N
2-chloronaphthalene	< 330. ug/kg	330.	447100000N
2-nitroaniline	< 830. ug/kg	830.	447200000N
dimethyl phthalate	< 330. ug/kg	330.	447300000N
acenaphthylene	< 330. ug/kg	330.	447400000N

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jon S. Kauffman, Ph.D.
Group Leader, GC/MS

Lancaster Laboratories, Inc.

1000 North 10th Street

Lebanon, PA 17042-1000

TEL: (717) 656-2301



11:43:33 359344 REP
ASR000 D 2 2
06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

LLI Sample No. SW 1894506
Date Reported 12/9/92
Date Submitted 11/14/92
Discard Date 12/24/92
Collected 11/13/93 by PJD
Time Collected 1700
P.O.
Rel.

EDSCF111392 Soil Sample
Chemical Land Holdings, Inc.

BDSCF SDG#	RESULT	LIMIT OF	LAB CODE
TCL Semi-Volatiles (3/90) cont	AS RECEIVED	QUANTITATION	
3-nitroaniline	< 830. ug/kg	830.	447500000N
acenaphthene	< 330. ug/kg	330.	447600000N
2,4-dinitrophenol	< 830. ug/kg	830.	447700000N
4-nitrophenol	< 830. ug/kg	830.	447800000N
dibenzofuran	< 330. ug/kg	330.	447900000N
2,4-dinitrotoluene	< 330. ug/kg	330.	448000000N
2,6-dinitrotoluene	< 330. ug/kg	330.	448100000N
diethyl phthalate	< 330. ug/kg	330.	448200000N
4-chlorophenyl phenyl ether	< 330. ug/kg	330.	448300000N
fluorene	< 330. ug/kg	330.	448400000N
4-nitroaniline	< 830. ug/kg	830.	448500000N
4,6-Dinitro-2-methylphenol	< 830. ug/kg	830.	448600000N
N-nitrosodiphenylamine	< 330. ug/kg	330.	448700000N
4-bromophenyl phenyl ether	< 330. ug/kg	330.	448800000N
hexachlorobenzene	< 330. ug/kg	330.	448900000N
pentachlorophenol	< 830. ug/kg	830.	449000000N
phenanthrene	< 330. ug/kg	330.	449100000N
anthracene	< 330. ug/kg	330.	449200000N
carbazole	< 330. ug/kg	330.	449300000N
di-n-butyl phthalate	< 330. ug/kg	330.	449400000N
fluoranthene	< 330. ug/kg	330.	449500000N
pyrene	< 330. ug/kg	330.	449600000N
butyl benzyl phthalate	< 330. ug/kg	330.	449700000N
3,3'-dichlorobenzidine	< 330. ug/kg	330.	449800000N
benzo (a) anthracene	< 330. ug/kg	330.	449900000N
bis (2-ethylhexyl) phthalate	< 330. ug/kg	330.	450000000N
chrysene	< 330. ug/kg	330.	450100000N
di-n-octyl phthalate	< 330. ug/kg	330.	450200000N
benzo (b) fluoranthene	< 330. ug/kg	330.	450300000N
benzo (k) fluoranthene	< 330. ug/kg	330.	450400000N
benzo (a) pyrene	< 330. ug/kg	330.	450500000N
indeno (1,2,3-cd) pyrene	< 330. ug/kg	330.	450600000N
dibenz (a,h) anthracene	< 330. ug/kg	330.	450700000N
benzo (ghi) perylene	< 330. ug/kg	330.	450800000N

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ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jon S. Kauffman, Ph.D.
Group Leader, GC/MS



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11:43:37 359344 REP

ASR000 D 2 2

06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

LLI Sample No. SW 1894506

Date Reported 12/ 9/92

Date Submitted 11/14/92

Discard Date 12/24/92

Collected 11/13/93 by PJD

Time Collected 1700

P.O.

Rel.

BDSCF111392 Soil Sample
Chemical Land Holdings, Inc.

BDSCF SDG#	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Pesticides/PCBs (EPA 3/90 SOW)			
Alpha BEC	< 1.7 ug/kg	1.7	456300000N
Beta BEC	< 1.7 ug/kg	1.7	456400000N
Delta BEC	< 1.7 ug/kg	1.7	456500000N
Gamma BEC - Lindane	< 1.7 ug/kg	1.7	456600000N
Heptachlor	< 1.7 ug/kg	1.7	456700000N
Aldrin	< 1.7 ug/kg	1.7	456800000N
Heptachlor Epoxide	< 1.7 ug/kg	1.7	456900000N
Endosulfan I	< 1.7 ug/kg	1.7	457000000N
Dieldrin	< 3.3 ug/kg	3.3	457100000N
4,4-DDE	< 3.3 ug/kg	3.3	457200000N
Endrin	< 3.3 ug/kg	3.3	457300000N
Endosulfan II	< 3.3 ug/kg	3.3	457400000N
4,4-DDD	< 3.3 ug/kg	3.3	457500000N
Endosulfan Sulfate	< 3.3 ug/kg	3.3	457600000N
4,4-DDT	< 3.3 ug/kg	3.3	457700000N
Methoxychlor	< 17. ug/kg	17.	457800000N
Endrin Ketone	< 3.3 ug/kg	3.3	457900000N
Endrin Aldehyde	< 3.3 ug/kg	3.3	458000000N
Alpha Chlordane	< 1.7 ug/kg	1.7	458100000N
Gamma Chlordane	< 1.7 ug/kg	1.7	458200000N
Toxaphene	< 170. ug/kg	170.	458300000N
PCB-1016	< 33. ug/kg	33.	458400000N
PCB-1221	< 67. ug/kg	67.	458500000N
PCB-1232	< 33. ug/kg	33.	458600000N
PCB-1242	< 33. ug/kg	33.	458700000N
PCB-1248	< 33. ug/kg	33.	458800000N
PCB-1254	< 33. ug/kg	33.	458900000N
PCB-1260	< 33. ug/kg	33.	459000000N

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jenifer E. Hess, B.S.
Group Leader Pesticides/PCBs

Lancaster Laboratories, Inc.
2403 New Holland Ave
Lancaster, PA 17601-6994
(717) 656-2301

See us at: 1993 Environmental Monitoring Systems Conference



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11:43:46 359344 REP

ASR000 D 2 2

06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

BDNCF111392 Soil Sample
Chemical Land Holdings, Inc.

LLI Sample No. SW 1894505
Date Reported 12/ 9/92
Date Submitted 11/14/92
Discard Date 12/24/92
Collected 11/13/93 by PJD
Time Collected 1700
P.O.
Rel.

BDNCF SDG#	ANALYSIS	RESULT	AS RECEIVED	LIMIT OF	QUANTITATION	LAB CODE
Moisture		36.9	% by wt.	0.5		011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.						
Mercury		< 0.3	mg/kg	0.3		015903500
VOA GC/MS Library Search			attached			089005500

The results from the volatile library search are listed on the attached
FORM 1E - VOA-TIC. The qualifiers appearing in the "Q" column are:

- B - detected in method blank
- D - determined in diluted sample
- J - estimated value
- N - presumptive evidence of a compound

Semivolatile Library Search attached 089309500

The results from the semivolatile library search are listed on the attached
FORM 1F - SV-TIC. The qualifiers appearing in the "Q" column are:

- A - alcdol condensate
- B - detected in method blank
- D - determined in diluted sample
- X - an isomer of the listed compound
- J - estimated value
- N - presumptive evidence of a compound

Arsenic (furnace method)	12.	mg/kg	2.	114504000
Lead (furnace method)	10.	mg/kg	10.	115504000
Selenium (furnace method)	< 2.	mg/kg	2.	116404000
Thallium (furnace method)	< 2.	mg/kg	2.	117304000
Aluminum	4,700.	mg/kg	60.	164301400
Antimony	< 40.	mg/kg	40.	164401400
Barium	60.	mg/kg	20.	164601400
Beryllium	< 1.	mg/kg	1.	164701400
Cadmium	< 4.	mg/kg	4.	164901400
Calcium	2,670.	mg/kg	60.	165001400
Chromium	18.	mg/kg	8.	165101400
Cobalt	< 10.	mg/kg	10.	165201400
Copper	15.	mg/kg	8.	165301400
Iron	11,200.	mg/kg	20.	165401400
Magnesium	1,180.	mg/kg	30.	165701400
Manganese	112.	mg/kg	4.	165801400
Nickel	< 10.	mg/kg	10.	166101400

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Ramona V. Layman, Group Leader
Instrumental Water Chemistry



11:43:46 359344 REP

ASR000 D 2 2

06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

LLI Sample No. SW 1894505
Date Reported 12/ 9/92
Date Submitted 11/14/92
Discard Date 12/24/92
Collected 11/13/93 by PJD
Time Collected 1700
P.O.
Rel.

BDNCF111392 Soil Sample
Chemical Land Holdings, Inc.

BDNCF SDG#

ANALYSIS

Potassium

Silver

Sodium

Vanadium

Zinc

Total Cyanide

TCL Volatiles (EPA 3/90 SOW)

TCL Semi-Volatiles (3/90 SOW)

TCL Semi-Volatiles (3/90) cont

Pesticides/PCBs (EPA 3/90 SOW)

RESULT
AS RECEIVED

700. mg/kg

< 4. mg/kg

< 200. mg/kg

10. mg/kg

50. mg/kg

< 0.3 mg/kg

attached

attached

attached

attached

LIMIT OF
QUANTITATION

100.

4.

200.

4.

40.

0.3

LAB CODE

166201400

166601400

166701400

167101400

167201400

334304000

427627000

443854000

443900000

456231000

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301
128 06101 105.00 187400

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Ramona V. Layman, Group Leader
Instrumental Water Chemistry

Lancaster Laboratories, Inc.
1415 North Meridian Ave.
Lancaster, PA 17601-6994
717-656-1330

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11:43:51 359344 REP

ASR000 D 2 2

06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

LLI Sample No. SW 1894505
Date Reported 12/ 9/92
Date Submitted 11/14/92
Discard Date 12/24/92
Collected 11/13/93 by PJD
Time Collected 1700
P.O.
Rel.

BDNCF111392 Soil Sample
Chemical Land Holdings, Inc.

BDNCF SDG#	RESULT	LIMIT OF	LAB CODE
TCL Volatiles (EPA 3/90 SOW)	AS RECEIVED	QUANTITATION	
Chloromethane	< 10. ug/kg	10.	432300000N
Bromomethane	< 10. ug/kg	10.	432400000N
Vinyl Chloride	< 10. ug/kg	10.	432500000N
Chloroethane	< 10. ug/kg	10.	432600000N
Methylene Chloride	< 10. ug/kg	10.	432700000N
Acetone	< 10. ug/kg	10.	432800000N
Carbon Disulfide	< 10. ug/kg	10.	432900000N
1,1-Dichloroethene	< 10. ug/kg	10.	433000000N
1,1-Dichloroethane	< 10. ug/kg	10.	433100000N
1,2-Dichloroethene (total)	< 10. ug/kg	10.	433200000N
Chloroform	< 10. ug/kg	10.	433300000N
1,2-Dichloroethane	< 10. ug/kg	10.	433400000N
2-Butanone	< 10. ug/kg	10.	433500000N
1,1,1-Trichloroethane	< 10. ug/kg	10.	433600000N
Carbon Tetrachloride	< 10. ug/kg	10.	433700000N
Bromodichloromethane	< 10. ug/kg	10.	433800000N
1,2-Dichloropropane	< 10. ug/kg	10.	433900000N
cis-1,3-Dichloropropene	< 10. ug/kg	10.	434000000N
Trichloroethene	< 10. ug/kg	10.	434100000N
Dibromochloromethane	< 10. ug/kg	10.	434200000N
1,1,2-Trichloroethane	< 10. ug/kg	10.	434300000N
Benzene	< 10. ug/kg	10.	434400000N
trans-1,3-Dichloropropene	< 10. ug/kg	10.	434500000N
Bromoform	< 10. ug/kg	10.	434600000N
4-Methyl-2-pentanone	< 10. ug/kg	10.	434700000N
2-Hexanone	< 10. ug/kg	10.	434800000N
Tetrachloroethene	< 10. ug/kg	10.	434900000N
1,1,2,2-Tetrachloroethane	< 10. ug/kg	10.	435000000N
Toluene	< 10. ug/kg	10.	435100000N
Chlorobenzene	< 10. ug/kg	10.	435200000N
Ethylbenzene	< 10. ug/kg	10.	435300000N
Styrene	< 10. ug/kg	10.	435400000N
Xylene (total)	< 10. ug/kg	10.	435500000N

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Michele McClarin, B.A.
Group Leader, GC/MS Volatiles

Lancaster Laboratories, Inc.
1400 N. 10th Street
P.O. Box 44-17601-4491
Harrisburg, PA 17104-4491



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11:43:58 359344 REP

ASR000 D 2 2

06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

BDNCF111392 Soil Sample
Chemical Land Holdings, Inc.

LLI Sample No. SW 1894505
Date Reported 12/ 9/92
Date Submitted 11/14/92
Discard Date 12/24/92
Collected 11/13/93 by PJD
Time Collected 1700
P.O.
Rel.

BDNCF SDG#

TCL Semi-Volatiles (3/90) cont

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
3-nitroaniline	< 830.	ug/kg	830.	447500000N
acenaphthene	< 330.	ug/kg	330.	447600000N
2,4-dinitrophenol	< 830.	ug/kg	830.	447700000N
4-nitrophenol	< 830.	ug/kg	830.	447800000N
dibenzofuran	< 330.	ug/kg	330.	447900000N
2,4-dinitrotoluene	< 330.	ug/kg	330.	448000000N
2,6-dinitrotoluene	< 330.	ug/kg	330.	448100000N
diethyl phthalate	< 330.	ug/kg	330.	448200000N
4-chlorophenyl phenyl ether	< 330.	ug/kg	330.	448300000N
fluorene	< 330.	ug/kg	330.	448400000N
4-nitroaniline	< 830.	ug/kg	830.	448500000N
4,6-Dinitro-2-methylphenol	< 830.	ug/kg	830.	448600000N
N-nitrosodiphenylamine	< 330.	ug/kg	330.	448700000N
4-bromophenyl phenyl ether	< 330.	ug/kg	330.	448800000N
hexachlorobenzene	< 330.	ug/kg	330.	448900000N
pentachlorophenol	< 830.	ug/kg	830.	449000000N
phenanthrene	< 330.	ug/kg	330.	449100000N
anthracene	< 330.	ug/kg	330.	449200000N
carbazole	< 330.	ug/kg	330.	449300000N
di-n-butyl phthalate	< 330.	ug/kg	330.	449400000N
fluoranthene	< 330.	ug/kg	330.	449500000N
pyrene	< 330.	ug/kg	330.	449600000N
butyl benzyl phthalate	< 330.	ug/kg	330.	449700000N
3,3'-dichlorobenzidine	< 330.	ug/kg	330.	449800000N
benzo (a) anthracene	< 330.	ug/kg	330.	449900000N
bis (2-ethylhexyl) phthalate	< 330.	ug/kg	330.	450000000N
chrysene	< 330.	ug/kg	330.	450100000N
di-n-octyl phthalate	< 330.	ug/kg	330.	450200000N
benzo (b) fluoranthene	< 330.	ug/kg	330.	450300000N
benzo (k) fluoranthene	< 330.	ug/kg	330.	450400000N
benzo (a) pyrene	< 330.	ug/kg	330.	450500000N
indeno (1,2,3-cd) pyrene	< 330.	ug/kg	330.	450600000N
dibenz (a,h) anthracene	< 330.	ug/kg	330.	450700000N
benzo (ghi) perylene	< 330.	ug/kg	330.	450800000N

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jon S. Kauffman, Ph.D.
Group Leader, GC/MS

Lancaster Laboratories, Inc.
2415 North 10th Ave
Lancaster, PA 17601-5994
(717) 656-2301



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11:44:03 35934 REP

ASR000 D 2 2

06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

LLI Sample No. SW 1894505

Date Reported 12/ 9/92

Date Submitted 11/14/92

Discard Date 12/24/92

Collected 11/13/93 by PJD

Time Collected 1700

P.O.

Rel.

BDNCF111392 Soil Sample
Chemical Land Holdings, Inc.

BDNCF SDG#

Pesticides/PCBs (EPA 3/90 SOW)

	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Alpha BHC	< 1.7 ug/kg	1.7	456300000N
Beta BHC	< 1.7 ug/kg	1.7	456400000N
Delta BHC	< 1.7 ug/kg	1.7	456500000N
Gamma BHC - Lindane	< 1.7 ug/kg	1.7	456600000N
Heptachlor	< 1.7 ug/kg	1.7	456700000N
Aldrin	< 1.7 ug/kg	1.7	456800000N
Heptachlor Epoxide	< 1.7 ug/kg	1.7	456900000N
Endosulfan I	< 1.7 ug/kg	1.7	457000000N
Dieldrin	< 3.3 ug/kg	3.3	457100000N
4,4-DDE	< 3.3 ug/kg	3.3	457200000N
Endrin	< 3.3 ug/kg	3.3	457300000N
Endosulfan II	< 3.3 ug/kg	3.3	457400000N
4,4-DDD	< 3.3 ug/kg	3.3	457500000N
Endosulfan Sulfate	< 3.3 ug/kg	3.3	457600000N
4,4-DDT	< 3.3 ug/kg	3.3	457700000N
Methoxychlor	< 17. ug/kg	17.	457800000N
Endrin Ketone	< 3.3 ug/kg	3.3	457900000N
Endrin Aldehyde	< 3.3 ug/kg	3.3	458000000N
Alpha Chlordane	< 1.7 ug/kg	1.7	458100000N
Gamma Chlordane	< 1.7 ug/kg	1.7	458200000N
Toxaphene	< 170. ug/kg	170.	458300000N
PCB-1016	< 33. ug/kg	33.	458400000N
PCB-1221	< 67. ug/kg	67.	458500000N
PCB-1232	< 33. ug/kg	33.	458600000N
PCB-1242	< 33. ug/kg	33.	458700000N
PCB-1248	< 33. ug/kg	33.	458800000N
PCB-1254	< 33. ug/kg	33.	458900000N
PCB-1260	< 33. ug/kg	33.	459000000N

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jenifer E. Hess, B.S.
Group Leader Pesticides/PCBs

Lancaster Laboratories, Inc.
1425 New Holland Pike
Lancaster, PA 17601-5994
(717) 656-2301

See reverse side for additional information



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09:34:40 335571
ASR000 D 2 2
36131 3

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

LLI Sample No. SW 1804565
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1041
P.O.
Rel.

Sampling Point #1 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface

1A1B-

ANALYSIS

Mercury

VOA GC/MS Library Search

RESULT
AS RECEIVED
< 0.1 mg/kg
attached

LIMIT OF
QUANTITATION
0.1
LAB CODE
015903500
089005500

The results from the volatile library search are listed on the attached

FORM 1E - VOA-TIC. The qualifiers appearing in the "Q" column are:

- B - detected in method blank
- D - determined in diluted sample
- J - estimated value
- N - presumptive evidence of a compound

Semivolatile Library Search

attached

089309500

The results from the semivolatile library search are listed on the attached

FORM 1F - SV-TIC. The qualifiers appearing in the "Q" column are:

- A - aldol condensate
- B - detected in method blank
- D - determined in diluted sample
- I - an isomer of the listed compound
- J - estimated value
- N - presumptive evidence of a compound

Arsenic (furnace method)	11.	mg/kg	2.	114504000
Lead (furnace method)	10.	mg/kg	2.	115504000
Selenium (furnace method)	< 1.	mg/kg	1.	116404000
Thallium (furnace method)	< 2.	mg/kg	2.	117304000
TCL Volatiles (EPA 2/88 SOW)		attached		117827000
TCL Semi-Volatiles (Soil)		attached		120154000
TCL Semi-Volatiles (Soil) cont		attached		120200000
TCL Pesticides		attached		122531000
Moisture	7.3	% by wt.	0.5	135301200
pH	7.71		0.01	144101000

The pH was performed on a 1:1 slurry (50 gm of sample and 50 ml of deionized water) after being tumbled for one hour.

The pH of the method blank (background soil) analyzed with samples 1804565 and 1804566 was 7.04.

Aluminum	5,070.	mg/kg	20.	164301400
Antimony	< 5.	mg/kg	5.	164401400
Barium	30.	mg/kg	20.	164601400
Beryllium	< 0.5	mg/kg	0.5	164701400
Cadmium	< 0.5	mg/kg	0.5	164901400
Calcium	12,200.	mg/kg	50.	165001400

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Ramona V. Layman, Group Leader
Instrumental Water Chemistry



Lancaster Laboratories, Inc.
1400 E. Main Street
P.O. Box 100
Lancaster, PA 17604

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09:34:40 335571
ASR000 D 2 2
06101 0

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

Sampling Point #1 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface

1A1B-

ANALYSIS

Chromium
Cobalt
Copper
Iron
Magnesium
Manganese
Nickel
Potassium
Silver
Sodium
Vanadium
Zinc
Total Cyanide

RESULT AS RECEIVED

13.	mg/kg
7.	mg/kg
16.	mg/kg
16,300.	mg/kg
7,540.	mg/kg
345.	mg/kg
14.	mg/kg
920.	mg/kg
< 1.	mg/kg
< 50.	mg/kg
10.	mg/kg
52.	mg/kg
< 0.3	mg/kg

LLI Sample No. SW 1804565
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1041
P.O.
Rel.

LIMIT OF QUANTITATION

LAB CODE

5.	165101400
5.	165201400
2.	165301400
10.	165401400
50.	165701400
1.	165801400
4.	166101400
50.	166201400
1.	166601400
50.	166701400
5.	167101400
2.	167201400
0.3	334304000

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301
526 06101 105.00 188400

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Ramona V. Layman, Group Leader
Instrumental Water Chemistry



Lancaster Laboratories, Inc.
1425 New Holland Pike
Lancaster, PA 17601-5994
717-656-2301

See reverse for full report and comments on analysis.





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09:34:48 335571
ASR000 D 2 2
06101 0

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

Sampling Point #1 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface

LLI Sample No. SW 1804565
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1041
P.O.
Rel.

1A13-	RESULT	AS RECEIVED	LIMIT OF	LAB CODE
TCL Volatiles (EPA 2/88 SOW)			QUANTITATION	
Chloromethane	< 10.	ug/kg	10.	345900000N
Bromomethane	< 10.	ug/kg	10.	346000000N
Vinyl Chloride	< 10.	ug/kg	10.	346100000N
Chloroethane	< 10.	ug/kg	10.	346200000N
Methylene Chloride	< 5.	ug/kg	5.	346300000N
Acetone	< 10.	ug/kg	10.	346400000N
Carbon Disulfide	< 5.	ug/kg	5.	346500000N
1,1-Dichloroethene	< 5.	ug/kg	5.	346600000N
1,1-Dichloroethane	< 5.	ug/kg	5.	346700000N
1,2-Dichloroethene (total)	< 5.	ug/kg	5.	117900000N
Chloroform	< 5.	ug/kg	5.	346800000N
1,2-Dichloroethane	< 5.	ug/kg	5.	346900000N
2-Butanone	< 10.	ug/kg	10.	347000000N
1,1,1-Trichloroethane	< 5.	ug/kg	5.	347100000N
Carbon Tetrachloride	< 5.	ug/kg	5.	347200000N
Vinyl Acetate	< 10.	ug/kg	10.	347300000N
Bromodichloromethane	< 5.	ug/kg	5.	347400000N
1,2-Dichloropropane	< 5.	ug/kg	5.	347500000N
cis-1,3-Dichloropropene	< 5.	ug/kg	5.	347600000N
Trichloroethene	< 5.	ug/kg	5.	347700000N
Dibromochloromethane	< 5.	ug/kg	5.	347800000N
1,1,2-Trichloroethane	< 5.	ug/kg	5.	347900000N
Benzene	< 5.	ug/kg	5.	348000000N
trans-1,3-Dichloropropene	< 5.	ug/kg	5.	348100000N
Bromoform	< 5.	ug/kg	5.	348200000N
4-Methyl-2-pentanone	< 10.	ug/kg	10.	348300000N
2-Hexanone	< 10.	ug/kg	10.	348400000N
Tetrachloroethene	< 5.	ug/kg	5.	348500000N
1,1,2,2-Tetrachloroethane	< 5.	ug/kg	5.	348600000N
Toluene	< 5.	ug/kg	5.	348700000N
Chlorobenzene	< 5.	ug/kg	5.	348800000N
Ethylbenzene	< 5.	ug/kg	5.	348900000N
Styrene	< 5.	ug/kg	5.	349000000N
Xylene (total)	< 5.	ug/kg	5.	349100000N

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Michele McClarin, B.A.
Group Leader, GC/MS Volatiles

Lancaster Laboratories, Inc.
14230 E. Highway 100
Lancaster, PA 17601-8994
(717) 656-2301

See attached sheet

Original submitted and received at 11:11





Lancaster Laboratories

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09:34:53 335571

ASR000 D 2 2

06101 3

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

Sampling Point #1 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface
1A1B-

LLI Sample No. SW 1804565
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1041
P.O.
Rel.

	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
TCL Semi-Volatiles (Soil)			
phenol	< 330. ug/kg	330.	379200000N
bis (2-chloroethyl) ether	< 330. ug/kg	330.	379300000N
2-chlorophenol	< 330. ug/kg	330.	379400000N
1,3-dichlorobenzene	< 330. ug/kg	330.	379500000N
1,4-dichlorobenzene	< 330. ug/kg	330.	379600000N
benzyl alcohol	< 330. ug/kg	330.	379700000N
1,2-dichlorobenzene	< 330. ug/kg	330.	379800000N
2-methylphenol	< 330. ug/kg	330.	379900000N
bis (2-chloroisopropyl) ether	< 330. ug/kg	330.	380000000N
4-methylphenol	< 330. ug/kg	330.	380100000N
N-nitrosodi-n-propylamine	< 330. ug/kg	330.	380200000N
hexachloroethane	< 330. ug/kg	330.	380300000N
nitrobenzene	< 330. ug/kg	330.	380400000N
isophorone	< 330. ug/kg	330.	380500000N
2-nitrophenol	< 330. ug/kg	330.	380600000N
2,4-dimethylphenol	< 330. ug/kg	330.	380700000N
benzoic acid	< 1,700. ug/kg	1,700.	380800000N
bis (2-chloroethoxy) methane	< 330. ug/kg	330.	380900000N
2,4-dichlorophenol	< 330. ug/kg	330.	381000000N
1,2,4-trichlorobenzene	< 330. ug/kg	330.	381100000N
naphthalene	< 330. ug/kg	330.	381200000N
4-chloroaniline	< 330. ug/kg	330.	381300000N
hexachlorobutadiene	< 330. ug/kg	330.	381400000N
4-chloro-3-methylphenol	< 330. ug/kg	330.	381500000N
2-methylnaphthalene	< 330. ug/kg	330.	381600000N
hexachlorocyclopentadiene	< 330. ug/kg	330.	381700000N
2,4,6-trichlorophenol	< 330. ug/kg	330.	381800000N
2,4,5-trichlorophenol	< 1,700. ug/kg	1,700.	381900000N
2-chloronaphthalene	< 330. ug/kg	330.	382000000N
2-nitroaniline	< 1,700. ug/kg	1,700.	382100000N
dimethyl phthalate	< 330. ug/kg	330.	382200000N
acenaphthylene	< 330. ug/kg	330.	382300000N

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jon S. Kauffman, Ph.D.
Group Leader, GC/MS

Lancaster Laboratories, Inc.
1400 West 10th and Pike
Lancaster, PA 17604-5994
(717) 656-2301

See services section for information on most and special services.





Lancaster Laboratories

Where quality is a science.

09:35:01 335571

ASR000 D 2 2

36181 0

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

LLI Sample No. SW 1804565
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1041
P.O.
Rel.

Sampling Point #1 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface
1A1B-

TCL Semi-Volatiles (Soil) cont

	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
3-nitroaniline	< 1,700. ug/kg	1,700.	382400000N
acenaphthene	< 330. ug/kg	330.	382500000N
2,4-dinitrophenol	< 1,700. ug/kg	1,700.	382600000N
4-nitrophenol	< 1,700. ug/kg	1,700.	382700000N
dibenzofuran	< 330. ug/kg	330.	382800000N
2,4-dinitrotoluene	< 330. ug/kg	330.	382900000N
2,6-dinitrotoluene	< 330. ug/kg	330.	383000000N
diethyl phthalate	< 330. ug/kg	330.	383100000N
4-chlorophenyl phenyl ether	< 330. ug/kg	330.	383200000N
fluorene	< 330. ug/kg	330.	383300000N
4-nitroaniline	< 1,700. ug/kg	1,700.	383400000N
2-methyl-4,6-dinitrophenol	< 1,700. ug/kg	1,700.	383500000N
N-nitrosodiphenylamine	< 330. ug/kg	330.	383600000N
4-bromophenyl phenyl ether	< 330. ug/kg	330.	383700000N
hexachlorobenzene	< 330. ug/kg	330.	383800000N
pentachlorophenol	< 1,700. ug/kg	1,700.	383900000N
phenanthrene	< 330. ug/kg	330.	384000000N
anthracene	< 330. ug/kg	330.	384100000N
di-n-butyl phthalate	< 330. ug/kg	330.	384200000N
fluoranthene	< 330. ug/kg	330.	384300000N
pyrene	< 330. ug/kg	330.	384400000N
butyl benzyl phthalate	< 330. ug/kg	330.	384500000N
3,3'-dichlorobenzidine	< 670. ug/kg	670.	384600000N
benzo (a) anthracene	< 330. ug/kg	330.	384700000N
bis (2-ethylhexyl) phthalate	< 330. ug/kg	330.	384800000N
chrysene	< 330. ug/kg	330.	384900000N
di-n-octyl phthalate	< 330. ug/kg	330.	385000000N
benzo (b) fluoranthene	< 330. ug/kg	330.	385100000N
benzo (K) fluoranthene	< 330. ug/kg	330.	385200000N
benzo (a) pyrene	< 330. ug/kg	330.	385300000N
indeno (1,2,3-cd) pyrene	< 330. ug/kg	330.	385400000N
dibenz (a,h) anthracene	< 330. ug/kg	330.	385500000N
benzo (ghi) perylene	< 330. ug/kg	330.	385600000N

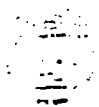
2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jon S. Kauffman, Ph.D.
Group Leader, GC/MS



Lancaster Laboratories, Inc.
2420 New Rd and Pkwy
Lancaster, PA 17601-5594
(717) 656-2301

See reverse side for... and... and...





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09:35:10 335571

ASR000 D 2 2

36101 3

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

Sampling Point #1 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface

1A1B-

TCL Pesticides

Alpha BHC

Beta BHC

Delta BHC

Gamma BHC - Lindane

Heptachlor

Aldrin

Heptachlor Epoxide

Endosulfan I

Dieldrin

DDE

Endrin

Endosulfan II

DDD

Endosulfan Sulfate

DDT

Endrin Ketone

Methoxychlor

Alpha Chlordane

Gamma Chlordane

Toxaphene

PCB-1016

PCB-1221

PCB-1232

PCB-1242

PCB-1248

PCB-1254

PCB-1260

RESULT
AS RECEIVED

< 8. ug/kg

< 8. ug/kg

< 8. ug/kg

< 8. ug/kg

< 8. ug/kg

< 8. ug/kg

< 8. ug/kg

< 8. ug/kg

< 16. ug/kg

< 16. ug/kg

< 16. ug/kg

< 16. ug/kg

< 16. ug/kg

< 16. ug/kg

< 16. ug/kg

< 16. ug/kg

< 80. ug/kg

< 80. ug/kg

< 80. ug/kg

< 160. ug/kg

< 80. ug/kg

< 80. ug/kg

< 80. ug/kg

< 80. ug/kg

< 80. ug/kg

< 160. ug/kg

< 160. ug/kg

LIMIT OF
QUANTITATION

8.

8.

8.

8.

8.

8.

8.

8.

16.

16.

16.

16.

16.

16.

16.

16.

80.

80.

80.

160.

80.

80.

80.

80.

80.

160.

160.

LAB CODE

300000000N

300100000N

300200000N

301900000N

302000000N

302100000N

300300000N

300700000N

302300000N

300400000N

302400000N

300800000N

300500000N

300900000N

302200000N

301700000N

300600000N

302500000N

302600000N

301800000N

301000000N

301100000N

301200000N

301300000N

301400000N

301500000N

301600000N

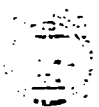
2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jenifer E. Hess, B.S.
Group Leader Pesticides/PCBs



Lancaster Laboratories, Inc.
2425 New York and Pike
Lancaster, PA 17601-5994
(717) 656-2301

See reverse side for information of Lancaster Laboratories, Inc.





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11:43:23 359344 REP

ASR000 D 2 2

06101 0

Maxus Energy Corporation
6001-D Landerhaven Drive
Mayfield Heights, OH 44124

LLI Sample No. SW 1894506
Date Reported 12/ 9/92
Date Submitted 11/14/92
Discard Date 12/24/92
Collected 11/13/93 by PJD
Time Collected 1700
P.O.
Rel.

BDSCF111392 Soil Sample
Chemical Land Holdings, Inc.

BDSCF SDG#	ANALYSIS	RESULT	AS RECEIVED	LIMIT OF	QUANTITATION	LAB CODE
	Moisture	22.0	% by wt.	0.5		011101200
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius.						
	Mercury	< 0.3	mg/kg	0.3		015903500
	VOA GC/MS Library Search		attached			089005300
The results from the volatile library search are listed on the attached FORM 1E - VOA-TIC. The qualifiers appearing in the "Q" column are:						
B - detected in method blank						
D - determined in diluted sample						
J - estimated value						
N - presumptive evidence of a compound						
	Semivolatile Library Search		attached			089309500
The results from the semivolatile library search are listed on the attached FORM 1F - SV-TIC. The qualifiers appearing in the "Q" column are:						
A - aldol condensate						
B - detected in method blank						
D - determined in diluted sample						
X - an isomer of the listed compound						
J - estimated value						
N - presumptive evidence of a compound						
	Arsenic (furnace method)	12.	mg/kg	4.		114504000
	Lead (furnace method)	10.	mg/kg	10.		115504000
	Selenium (furnace method)	< 2.	mg/kg	2.		116404000
	Thallium (furnace method)	< 2.	mg/kg	2.		117304000
	Aluminum	5,830.	mg/kg	60.		164301400
	Antimony	< 40.	mg/kg	40.		164401400
	Barium	70.	mg/kg	20.		164601400
	Beryllium	< 1.	mg/kg	1.		164701400
	Cadmium	< 4.	mg/kg	4.		164901400
	Calcium	3,120.	mg/kg	60.		165001400
	Chromium	19.	mg/kg	8.		165101400
	Cobalt	< 10.	mg/kg	10.		165201400
	Copper	17.	mg/kg	8.		165301400
	Iron	15,800.	mg/kg	20.		165401400
	Magnesium	2,060.	mg/kg	30.		165701400
	Manganese	177.	mg/kg	4.		165801400
	Nickel	20.	mg/kg	10.		166101400

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Ramona V. Layman, Group Leader
Instrumental Water Chemistry



Lancaster Laboratories

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09:35:22 335571

ASR000 D 2 2

36:01 0

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

Sampling Point #2 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface

LLI Sample No. SW 1804566
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1043
P.O.
Rel.

2A2B- ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.1 mg/kg	0.1	015903500
VOA GC/MS Library Search	attached		089005500

The results from the volatile library search are listed on the attached
FORM 1E - VOA-TIC. The qualifiers appearing in the "Q" column are:

- B - detected in method blank
- D - determined in diluted sample
- J - estimated value
- N - presumptive evidence of a compound

Semivolatile Library Search attached 089309500

The results from the semivolatile library search are listed on the attached
FORM 1F - SV-TIC. The qualifiers appearing in the "Q" column are:

- A - aldol condensate
- B - detected in method blank
- D - determined in diluted sample
- I - an isomer of the listed compound
- J - estimated value
- N - presumptive evidence of a compound

Arsenic (furnace method)	20.	mg/kg	10.	114504000
Lead (furnace method)	16.	mg/kg	5.	115504000
Selenium (furnace method)	< 1.	mg/kg	1.	116404000
Thallium (furnace method)	< 2.	mg/kg	2.	117304000
TCL Volatiles (EPA 2/88 SOW)		attached		117827000
TCL Semi-Volatiles (Soil)		attached		120154000
TCL Semi-Volatiles (Soil) cont		attached		120200000
TCL Pesticides		attached		122531000
Moisture	7.1	% by wt.	0.5	135301200
pH	7.66		0.01	144101000

The pH was performed on a 1:1 slurry (50 gm of sample and 50 ml of deionized water) after being tumbled for one hour.

Aluminum	6,970.	mg/kg	20.	164301400
Antimony	< 5.	mg/kg	5.	164401400
Barium	50.	mg/kg	20.	164601400
Beryllium	< 0.5	mg/kg	0.5	164701400
Cadmium	< 0.5	mg/kg	0.5	164901400
Calcium	24,600.	mg/kg	50.	165001400
Chromium	17.	mg/kg	5.	165101400
Cobalt	8.	mg/kg	5.	165201400

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Ramona V. Layman, Group Leader
Instrumental Water Chemistry





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09:35:22 335571

ASR000 D 2 2

06101 0

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

LLI Sample No. SW 1804566
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1043
P.O.
Rel.

Sampling Point #2 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface
2A2B-

ANALYSIS

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
Copper	20.	mg/kg	2.	165301400
Iron	20,600.	mg/kg	10.	165401400
Magnesium	10,200.	mg/kg	50.	165701400
Manganese	473.	mg/kg	1.	165801400
Nickel	21.	mg/kg	4.	166101400
Potassium	1,120.	mg/kg	50.	166201400
Silver	< 1.	mg/kg	1.	166601400
Sodium	120.	mg/kg	50.	166701400
Vanadium	11.	mg/kg	5.	167101400
Zinc	70.	mg/kg	2.	167201400
Total Cyanide	< 0.3	mg/kg	0.3	334304000

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301
526 06101 105.00 188400

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Ramona V. Layman, Group Leader
Instrumental Water Chemistry



Lancaster Laboratories, Inc.
1425 New Holland Ave.
Lancaster, PA 17604-5994
(717) 656-1101

See reverse for details on our products and services





Lancaster Laboratories

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09:35:33 335571

ASR000 D 2 2

06101 0

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

Sampling Point #2 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface
2A2B-

LLI Sample No. SW 1804566
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1043
P.O.
Rel.

	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
TCL Volatiles (EPA 2/88 SOW)			
Chloromethane	< 10. ug/kg	10.	345900000N
Bromomethane	< 10. ug/kg	10.	346000000N
Vinyl Chloride	< 10. ug/kg	10.	346100000N
Chloroethane	< 10. ug/kg	10.	346200000N
Methylene Chloride	< 5. ug/kg	5.	346300000N
Acetone	< 10. ug/kg	10.	346400000N
Carbon Disulfide	< 5. ug/kg	5.	346500000N
1,1-Dichloroethene	< 5. ug/kg	5.	346600000N
1,1-Dichloroethane	< 5. ug/kg	5.	346700000N
1,2-Dichloroethene (total)	< 5. ug/kg	5.	117900000N
Chloroform	< 5. ug/kg	5.	346800000N
1,2-Dichloroethane	< 5. ug/kg	5.	346900000N
2-Butanone	< 10. ug/kg	10.	347000000N
1,1,1-Trichloroethane	< 5. ug/kg	5.	347100000N
Carbon Tetrachloride	< 5. ug/kg	5.	347200000N
Vinyl Acetate	< 10. ug/kg	10.	347300000N
Bromodichloromethane	< 5. ug/kg	5.	347400000N
1,2-Dichloropropane	< 5. ug/kg	5.	347500000N
cis-1,3-Dichloropropene	< 5. ug/kg	5.	347600000N
Trichloroethene	< 5. ug/kg	5.	347700000N
Dibromochloromethane	< 5. ug/kg	5.	347800000N
1,1,2-Trichloroethane	< 5. ug/kg	5.	347900000N
Benzene	< 5. ug/kg	5.	348000000N
trans-1,3-Dichloropropene	< 5. ug/kg	5.	348100000N
Bromoform	< 5. ug/kg	5.	348200000N
4-Methyl-2-pentanone	< 10. ug/kg	10.	348300000N
2-Hexanone	< 10. ug/kg	10.	348400000N
Tetrachloroethene	< 5. ug/kg	5.	348500000N
1,1,2,2-Tetrachloroethane	< 5. ug/kg	5.	348600000N
Toluene	< 5. ug/kg	5.	348700000N
Chlorobenzene	< 5. ug/kg	5.	348800000N
Ethylbenzene	< 5. ug/kg	5.	348900000N
Styrene	< 5. ug/kg	5.	349000000N
Xylene (total)	< 5. ug/kg	5.	349100000N

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Michele McClarin, B.A.
Group Leader, GC/MS Volatiles

Lancaster Laboratories, Inc.
1401 Lancaster Road
Lancaster, PA 17601-8994
(717) 656-2301





Lancaster Laboratories

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09:35:43 335571

ASR000 D 2 2

3618: 3

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

Sampling Point #2 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface
2A2B-

LLI Sample No. SW 1804566
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1043
P.O.
Rel.

	RESULT		LIMIT OF	LAB CODE
	AS RECEIVED		QUANTITATION	
TCL Semi-Volatiles (Soil)				
phenol	< 330. ug/kg	330.	379200000N	
bis (2-chloroethyl) ether	< 330. ug/kg	330.	379300000N	
2-chlorophenol	< 330. ug/kg	330.	379400000N	
1,3-dichlorobenzene	< 330. ug/kg	330.	379500000N	
1,4-dichlorobenzene	< 330. ug/kg	330.	379600000N	
benzyl alcohol	< 330. ug/kg	330.	379700000N	
1,2-dichlorobenzene	< 330. ug/kg	330.	379800000N	
2-methylphenol	< 330. ug/kg	330.	379900000N	
bis (2-chloroisopropyl) ether	< 330. ug/kg	330.	380000000N	
4-methylphenol	< 330. ug/kg	330.	380100000N	
N-nitrosodi-n-propylamine	< 330. ug/kg	330.	380200000N	
hexachloroethane	< 330. ug/kg	330.	380300000N	
nitrobenzene	< 330. ug/kg	330.	380400000N	
isophorone	< 330. ug/kg	330.	380500000N	
2-nitrophenol	< 330. ug/kg	330.	380600000N	
2,4-dimethylphenol	< 330. ug/kg	330.	380700000N	
benzoic acid	< 1,700. ug/kg	1,700.	380800000N	
bis (2-chloroethoxy) methane	< 330. ug/kg	330.	380900000N	
2,4-dichlorophenol	< 330. ug/kg	330.	381000000N	
1,2,4-trichlorobenzene	< 330. ug/kg	330.	381100000N	
naphthalene	< 330. ug/kg	330.	381200000N	
4-chloroaniline	< 330. ug/kg	330.	381300000N	
hexachlorobutadiene	< 330. ug/kg	330.	381400000N	
4-chloro-3-methylphenol	< 330. ug/kg	330.	381500000N	
2-methylnaphthalene	< 330. ug/kg	330.	381600000N	
hexachlorocyclopentadiene	< 330. ug/kg	330.	381700000N	
2,4,6-trichlorophenol	< 330. ug/kg	330.	381800000N	
2,4,5-trichlorophenol	< 1,700. ug/kg	1,700.	381900000N	
2-chloronaphthalene	< 330. ug/kg	330.	382000000N	
2-nitroaniline	< 1,700. ug/kg	1,700.	382100000N	
dimethyl phthalate	< 330. ug/kg	330.	382200000N	
acenaphthylene	< 330. ug/kg	330.	382300000N	

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jon S. Kauffman, Ph.D.
Group Leader, GC/MS

Lancaster Laboratories, Inc.
2425 Newlin and Pike
Lancaster, PA 17601-5994
(717) 656-2301





Lancaster Laboratories

Where quality is a science.

09:35:58 335571

ASR000 D 2 2

06:01 0

Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

LLI Sample No. SW 1804566
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1043
P.O.
Rel.

Sampling Point #2 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface
2A2B-

	RESULT		LIMIT OF	
	AS RECEIVED		QUANTITATION	LAB CODE
TCL Semi-Volatiles (Soil) cont				
3-nitroaniline	< 1,700.	ug/kg	1,700.	382400000N
acenaphthene	< 330.	ug/kg	330.	382500000N
2,4-dinitrophenol	< 1,700.	ug/kg	1,700.	382600000N
4-nitrophenol	< 1,700.	ug/kg	1,700.	382700000N
dibenzofuran	< 330.	ug/kg	330.	382800000N
2,4-dinitrotoluene	< 330.	ug/kg	330.	382900000N
2,6-dinitrotoluene	< 330.	ug/kg	330.	383000000N
diethyl phthalate	< 330.	ug/kg	330.	383100000N
4-chlorophenyl phenyl ether	< 330.	ug/kg	330.	383200000N
fluorene	< 330.	ug/kg	330.	383300000N
4-nitroaniline	< 1,700.	ug/kg	1,700.	383400000N
2-methyl-4,6-dinitrophenol	< 1,700.	ug/kg	1,700.	383500000N
N-nitrosodiphenylamine	< 330.	ug/kg	330.	383600000N
4-bromophenyl phenyl ether	< 330.	ug/kg	330.	383700000N
hexachlorobenzene	< 330.	ug/kg	330.	383800000N
pentachlorophenol	< 1,700.	ug/kg	1,700.	383900000N
phenanthrene	< 330.	ug/kg	330.	384000000N
anthracene	< 330.	ug/kg	330.	384100000N
di-n-butyl phthalate	< 330.	ug/kg	330.	384200000N
fluoranthene	< 330.	ug/kg	330.	384300000N
pyrene	< 330.	ug/kg	330.	384400000N
butyl benzyl phthalate	< 330.	ug/kg	330.	384500000N
3,3'-dichlorobenzidine	< 670.	ug/kg	670.	384600000N
benzo (a) anthracene	< 330.	ug/kg	330.	384700000N
bis (2-ethylhexyl) phthalate	370.	ug/kg	330.	384800000N
chrysene	< 330.	ug/kg	330.	384900000N
di-n-octyl phthalate	< 330.	ug/kg	330.	385000000N
benzo (b) fluoranthene	< 330.	ug/kg	330.	385100000N
benzo (K) fluoranthene	< 330.	ug/kg	330.	385200000N
benzo (a) pyrene	< 330.	ug/kg	330.	385300000N
indeno (1,2,3-cd) pyrene	< 330.	ug/kg	330.	385400000N
dibenz (a,h) anthracene	< 330.	ug/kg	330.	385500000N
benzo (ghi) perylene	< 330.	ug/kg	330.	385600000N

2 COPIES TO Maxus Energy Corporation

ATTN: Mr. Paul Dugas

Questions? Contact Environmental
Client Services at (717) 656-2301

Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jon S. Kauffman, Ph.D.
Group Leader, GC/MS



Lancaster Laboratories, Inc.
2425 Lehigh and Pike
Lancaster PA 17601-5994
717-656-2301

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Lancaster Laboratories

Where quality is a science.

09:36:14 335571

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Maxus Energy Corporation
4 Commerce Park Sq., Ste 600
23200 Chagrin Blvd.
Beachwood, OH 44122

Sampling Point #2 A/B Grab Soil Sample
Chemical Land Holdings
Painesville Works WL #3 Surface
2A2B-

LLI Sample No. SW 1804566
Date Reported 4/29/92
Date Submitted 4/15/92
Discard Date 5/14/92
Collected 4/14/92 by PJD
Time Collected 1043
P.O.
Rel.

	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
TCL Pesticides			
Alpha BHC	< 8. ug/kg	8.	300000000N
Beta BHC	< 8. ug/kg	8.	300100000N
Delta BHC	< 8. ug/kg	8.	300200000N
Gamma BHC - Lindane	< 8. ug/kg	8.	301900000N
Heptachlor	< 8. ug/kg	8.	302000000N
Aldrin	< 8. ug/kg	8.	302100000N
Heptachlor Epoxide	< 8. ug/kg	8.	300300000N
Endosulfan I	< 8. ug/kg	8.	300700000N
Dieldrin	< 16. ug/kg	16.	302300000N
DDE	< 16. ug/kg	16.	300400000N
Endrin	< 16. ug/kg	16.	302400000N
Endosulfan II	< 16. ug/kg	16.	300800000N
DDD	< 16. ug/kg	16.	300500000N
Endosulfan Sulfate	< 16. ug/kg	16.	300900000N
DDT	< 16. ug/kg	16.	302200000N
Endrin Ketone	< 16. ug/kg	16.	301700000N
Methoxychlor	< 80. ug/kg	80.	300600000N
Alpha Chlordane	< 80. ug/kg	80.	302500000N
Gamma Chlordane	< 80. ug/kg	80.	302600000N
Toxaphene	< 160. ug/kg	160.	301800000N
PCB-1016	< 80. ug/kg	80.	301000000N
PCB-1221	< 80. ug/kg	80.	301100000N
PCB-1232	< 80. ug/kg	80.	301200000N
PCB-1242	< 80. ug/kg	80.	301300000N
PCB-1248	< 80. ug/kg	80.	301400000N
PCB-1254	< 160. ug/kg	160.	301500000N
PCB-1260	< 160. ug/kg	160.	301600000N

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Respectfully Submitted
Lancaster Laboratories, Inc.
Reviewed and Approved by:

Jenifer E. Hess, B.S.
Group Leader Pesticides/PCBs



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